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Tongass National Forest

R10-MB-427

October 2001



Emerald Bay Timber Sale

Final Environmental Impact Statement and Record of Decision

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Alaska Region
Tongass National Forest

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Date: October 23, 2001

Dear Reader:

Enclosed is your copy of the Final Environmental Impact Statement (EIS) and Record of Decision (ROD) for the Emerald Bay Timber Sale, Ketchikan-Misty Fiords Ranger District, Tongass National Forest.

The ROD explains my decision to select Alternative D and the factors considered in reaching this decision. The effective date of implementation for the decision and the Notice of Rights of Appeal are also specified in the ROD.

Copies of the Final EIS and Record of Decision are available in all Forest Service offices (including District and Supervisor's Offices) on the Tongass National Forest. Additional copies may be obtained from the Ketchikan-Misty Fiords Ranger District office, 3031 Tongass Ave., Ketchikan, Alaska, 99901 or by calling (907) 225-2148.

I want to thank those of you who took the time to review and submit comments on the Draft Environmental Impact Statement. I appreciate your interest in the management of the Tongass National Forest.

Sincerely,

THOMAS PUCHLERZ
Forest Supervisor



Emerald Bay Timber Sale

Final Environmental Impact Statement

United States Department of Agriculture
Forest Service Alaska Region
Tongass National Forest

Lead Agency: USDA Forest Service
Tongass National Forest

Responsible Official: Forest Supervisor
Tongass National Forest
Ketchikan, AK

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Abstract

The USDA Forest Service proposes to harvest approximately 11 million board feet (MMBF) of timber in the Emerald Bay project area, Ketchikan-Misty Fiords Ranger District, Tongass National Forest. The Emerald Bay project area is on the west side of the Cleveland Peninsula. Timber volume would be sold from this project in one sale. The actions analyzed in this EIS are designed to implement direction contained in the Tongass Land and Resource Management Plan. The Final EIS describes four alternatives, which provide different combinations of resource outputs and spatial locations of harvest units. Alternatives B and D propose roading through a medium Old-growth Reserve (MOGR). The alternatives include: A) No Action, proposing no harvest or road construction from the project area at this time; B) maximizing the contribution to the timber products industry through application of predominantly even-aged management and construction of 6 miles of new road; C) minimizing impacts to MOGR through uneven-aged management and 100 percent helicopter yarding. No roads would be constructed; D) Balancing timber economics and resource protection through use of uneven-aged management and 3.8 miles of low-impact road construction.

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Record of Decision

THE HISTORY OF THE UNITED STATES

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FROM THE FOUNDATION OF THE COLONIES TO THE PRESENT DAY

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Record of Decision

Emerald Bay Timber Sale

Forest Service, USDA
Ketchikan-Misty Fiords Ranger District
Tongass National Forest
Alaska

Introduction

This Record of Decision (ROD) documents my decision to select Alternative D from the Emerald Bay Timber Sale Environmental Impact Statement (EIS). This Decision includes the specific location and design of timber harvest units and roads, as well as protection requirements for harvesting timber. The timber harvest is intended to be sold in one sale.

The 7,845-acre Emerald Bay project area is located approximately 40 air miles north of Ketchikan, Alaska. It is located on the Cleveland Peninsula in the Emerald Creek and Birch Creek watersheds. Access to the area is by small plane originating in Ketchikan or Wrangell or by boat through Ernest Sound. Previous efforts to schedule timber harvest on the southern portion of the Cleveland Peninsula have met with varying degrees of local and even national opposition. These issues were considered in this decision.

Background

When the Draft EIS was published, three alternatives were considered in detail; I identified Alternative C as our Preferred Alternative. We were interested in the information this alternative could provide on the economic viability of long helicopter-landing distances and the application of uneven-aged management prescriptions. It was our intent to apply this information to upcoming larger projects on the Cleveland Peninsula. Although the net stumpage value for Alternative C was negative, it was thought to be at least potentially implementable based on preliminary economic analysis.

Since the Draft EIS was published in February 2000, land management direction on much of the rest of the Cleveland Peninsula has shifted more than once. The 1997 Tongass Land Management Plan assigned approximately 81,000 acres of the 299,000 acres in the Cleveland and North Cleveland roadless areas to land use designations in which timber harvest is permitted (Timber, Modified Landscape, and Scenic Viewshed). In April 1999 Undersecretary of Agriculture Lyons issued a new Record of Decision for the Forest Plan, removing all but the Emerald Bay project area portion of the southern Cleveland Peninsula from development designations. In April 2001, Judge Singleton, in AFA v. Forest Service, vacated Undersecretary Lyon's decision, returning management of the area to the 1997 Forest Plan.

At the same time further analysis of Alternative C, based on additional site-specific field data and an improved R10 appraisal system, demonstrated it to be economically infeasible under any market scenario. The original preliminary (mid-market) appraisal of Alternative C, although negative, was not nearly as negative as the more recent and detailed analysis shows it to be. To assure that all reasonable alternatives are considered in light of the best economic information, we developed an additional, partially roaded alternative (Alternative D), with a continued emphasis on uneven-aged management.

As the project evolved through the steps in the NEPA process, several policy changes at the national level have affected its progress. In January 2001, the Forest Service adopted a national Roadless Area Conservation Policy, which prohibits most road construction and timber harvest in roadless areas. The roadless policy, however, exempted projects on the Tongass National Forest for which a Draft EIS had already been published, including the Emerald Bay sale. That policy is currently stayed by court order.

In June 2001, the Forest Service Chief reserved authority for approval of projects in roadless areas to himself. In July 2001, the Chief delegated to the Regional Forester authority to sign Records of Decision for projects in Inventoried Roadless Areas with Forest Plan Revisions that analyzed roadless areas. The Regional Forester has since delegated this authority to the Forest Supervisor.

The Forest Service Transportation Policy requires that an area-specific roads analysis be completed and a determination of need for amendment or revision of the Forest Plan be made if any roads are to be constructed or reconstructed in inventoried roadless or contiguous unroaded areas, until a forest-wide roads analysis has been completed (FSM 7712.16(c)). This analysis has been made for the Emerald Bay project and can be found in the project planning record. The determination can be found in Appendix 3 of this document

A separate interim directive (7710-2001-1) extends the deadlines for requiring roads analysis for all road management decisions to January 12, 2002 (FSM 7712.15), but does not apply to FSM 7712.16.

Purpose and Need

The Purpose and Need for this project, as described in the Draft and Final EISs, has always had two distinct components. The first part is to implement Forest Plan direction for the Timber Production land use designation as follows:

- Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner.
- Seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle.
- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.

- Support a wide range of natural resource employment opportunities within Southeast Alaska's communities.

The second part of the Purpose and Need is specific to the Emerald Bay project and departs from traditional timber sale harvest methods that have been the usual approach in Southeast Alaska. These project objectives are:

- Provide insight and information into possible approaches to timber harvest with minimal road building, using uneven-aged management techniques to maintain a diverse range of structures and a variety of wildlife habitats.
- Provide an opportunity to gather information on non-traditional log removal techniques such as uneven-aged helicopter harvesting and low-impact roading.
- Attempt to minimize disturbance in adjoining Old-growth LUDs and minimize fragmentation of roadless areas while still meeting the goals, objectives and desired condition for the Timber Production LUD.
- Provide local employment opportunities in the wood products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources.

Appendix A of the Final EIS provides a more detailed rationale for why the Emerald Bay project area was selected for analysis at this time. Further clarification can be found in the next section regarding this project's relationship to the Forest Plan.

The alternatives considered are possible approaches to meeting the two parts of the Purpose and Need. The environmental analysis documented in the Final Environmental Impact Statement (Final EIS) for the Emerald Bay project was conducted under the guidelines of the National Environmental Policy Act (NEPA) process. The NEPA was designed to help insure that I make the most informed decision possible for this proposed project.

Section 101 of the Tongass Timber Reform Act of 1990 (TTRA) directs the USDA Forest Service "... to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle." Section 101 of the TTRA specifies that Forest Service efforts to seek to meet market demand are subject to appropriations, National Forest Management Act requirements, and other applicable laws. Providing a timber supply from the Tongass for sustained local wood products industry employment and related economic and social benefits helps meet the Forest Plan objective of supporting a wide range of natural-resource employment opportunities within Southeast Alaska's communities.

Regional mills have demonstrated the capacity to process the logs, if a supply of timber is available. There is a projected need for the timber from this project area (see Final EIS, Appendix A), to provide for stability within fluctuating market demand. A substantial component of the economy of Southeast Alaska is dependent on the timber industry.

Public scoping began with publication of the Notice of Intent in the Federal Register on August 17, 1998. The Notice of Availability of the Draft EIS was published in the Federal Register on January 28, 2000. This ROD and the Final EIS disclose the environmental effects of the alternatives considered and document my decision to authorize the project and associated activities.

In developing the Final EIS and this ROD, I recognize that less than complete knowledge exists about many relationships and conditions of wildlife, fish, forests, jobs, and communities. The ecology, inventory, and management of a large forest area is a complex and developing science. The biology of wildlife species prompts questions about population dynamics and habitat relationships. The interaction between resource supply, the economy, and communities is not an exact science.

Record of Decision

The data and level of analysis used in the Final EIS were commensurate with the importance of the possible impacts (40 Code of Federal Regulations (CFR) 1502.15). When encountering a gap in information, the interdisciplinary team (IDT) took one of two approaches: (1) they collected the missing information or conducted the analysis necessary to identify important relationships, or (2) they concluded that, although the missing information would have added precision to estimates or better specified a relationship, the basic data and central relationships are sufficiently established in the respective sciences so that new information would be very unlikely to reverse or nullify understood relationships. As such, information missing from the Final EIS was not determined to be essential for a reasoned choice among the alternatives.

Decision

This Record of Decision documents my decision to implement activities in the Emerald Bay project area as described in Alternative D of the Final EIS. My decision encompasses the following:

- the estimated acreage to be treated in this project area in one timber sale;
- the location and design of timber harvest units;
- the location and design of 3.8 miles of road;
- mitigation and monitoring requirements;
- the construction of a LTF in Emerald Bay.

I have decided to choose Alternative D as the Selected Alternative and I authorize the actions necessary to implement my decision.

Timber harvest activities in the Emerald Bay project area take place on Timber Production Land Use Designations (LUDs) found suitable for timber production under provisions of the National Forest Management Act. Because these activities are the first scheduled to occur on the southern portion of the Cleveland Peninsula, and because there is a high level of social value placed on the unmanaged character of the Cleveland Peninsula, I have chosen an alternative which exceeds the standards and guidelines associated with this LUD.

An Old-growth Habitat LUD lies between the timber sale and Ernest Sound. In order to provide an economically feasible timber sale, it is necessary to build a road through this reserve. The Forest Plan allows for this if no other feasible route is possible. This road will be designed to minimize impacts to the environment and to the unmanaged character of the peninsula. It will be closed to public traffic during operations and put in storage immediately following silvicultural activity.

This decision meets the Purpose and Need for the project, is consistent with the Forest Plan, and responds to issues raised during scoping, analysis and public responses to the Draft EIS. It also attempts to balance timber sale financial efficiency with the social value placed on the unmanaged character of the Cleveland Peninsula.

Description of Selected Alternative D:

1. The Selected Alternative D will harvest approximately 625 acres of commercial forest land (CFL) to meet the requirements of the Tongass National Forest timber sale program. This specified harvest provides approximately 11.2 MMBF of sawlog and utility volume. Design features of approved harvest units are described in detail on the Unit Cards in Appendix 1 of the ROD.
2. The Selected Alternative D has deferred harvest on 29 acres of Unit 10 pending occupancy surveys on one red-tailed hawk nest. Occupancy surveys would be conducted until either 1) the nest remains unoccupied for 2 consecutive years at which time harvest may occur, or 2) the timber sale contract is concluded.
3. The Selected Alternative D includes both individual and group selection silvicultural systems. This exceeds the standards and guidelines for a Timber Production LUD, yet meets both parts of the project Purpose and Need by providing timber for market while minimizing old-growth fragmentation of the old-growth in the area through use of a shorter, lower impact road. This is also consistent with the Forest Service policy to reduce the amount of clearcutting. The selection prescriptions are intended to provide stand structural diversity, maintain riparian habitat, maintain scenic quality, and maintain uneven-aged conditions. In addition, these prescriptions would exceed Forest Plan standards for retention of original stand structure for marten (an average of

50 percent of original basal area is retained). The impacts to residual trees would be minimized. The Unit Cards in Appendix 1 of the ROD provide specific direction for field layout to accomplish these objectives.

4. The Selected Alternative D includes construction of 3.8 miles of road. 2.2 miles of which cross a medium Old-growth Reserve. This road would be closed to the public during timber sale operations and put in storage upon completion of silvicultural activities. This road will impact 14 acres of the 12,439-acre medium Old-growth Reserve, 5 acres of which are old-growth habitat. This ROD identifies mitigation measures authorized to reduce or eliminate adverse environmental effects of the timber harvest and road construction activities specified in the Selected Alternative.
5. The Selected Alternative D includes the construction of one land-to-barge LTF in Emerald Bay. This LTF is located within 330 feet of a recorded bald eagle nest. A variance from U.S. Fish and Wildlife Service will be requested.
6. Streams would receive buffers meeting or exceeding requirements specified by the Forest Plan Riparian Process Group (Forest Plan, page 4-53) Standards and Guidelines.
7. I have determined that the effects of the Selected Alternative on the subsistence resources are minimal. The direct, indirect, and cumulative effects from the action alternatives in the Emerald Bay project area do not present a significant possibility of a significant restriction of subsistence uses of deer, black bear, marten, wolf, otter, marine mammals, waterfowl, salmon, other finfish, shellfish, and other foods. This analysis is discussed in detail in Chapter 3 of the Final EIS (page 3-47).
8. The Selected Alternative D also includes a monitoring plan to ensure that no ATV (All-Terrain Vehicle) use of the area occurs. Due to its remote location and minimal historic use patterns, it is highly unlikely that any ATV use will occur within the project area during or after the timber sale. However, in order to address concerns with roaded access on the Cleveland Peninsula, a closure order will be issued along with the timber sale, the road will be put into storage (access blocked and crossings removed) after the sale, and periodic monitoring will assure that these measures are effective.

Reasons for Decision

In making my decision, I worked to assure consideration of all issues and to take into account the competing interests and values of the public. There were many divergent public, personal, and professional opinions expressed during this EIS process. The decision would probably not completely satisfy any one particular group or individual. However, I considered all views, and I believe the decision I have made is a balanced approach to implementing the Tongass Forest Plan.

The Selected Alternative D provides a beneficial mix of resources for the public, within a framework of existing laws, regulations, policies, public needs and desires, and the capabilities of the land, while meeting the stated Purpose and Need for this project, determined as follows:

1. My decision to implement this Selected Alternative D conforms with the Forest Plan and sound national forest management. I have considered the need to help provide a sustained level of timber supply to meet annual and Forest Plan planning cycle market demand, and to provide diverse opportunities for natural resource employment, consistent with multiple use and sustained yield of all renewable forest resources. The timber sale implemented through this project would help meet Southeast Alaska timber supply needs.

2. I have carefully considered the timing of this decision in view of ongoing changes in agency regulations and pending litigation. While I appreciate and understand the comments advising to delay this decision until such time as greater certainty exists regarding roadless area management, consideration of wilderness values and other current events, the need to complete analyses in a timely manner is compelling. Some of the factors I considered in making this decision include:
 - The revised Forest Plan allows for the activities approved by this decision to take place.
 - The repercussions of delaying decisions regarding road building and timber harvest, even for a relatively short period, have a significant effect on the amount of timber available for sale in the next year, due to the time needed for sale preparation activities, appraisal and advertisement, and to provide for the winter period when sale units are typically inaccessible.
 - Decisions delayed affect other decisions “in line” for consideration, creating impacts to the entire sale program several years into the future.
 - The Tongass National Forest will continue to be managed in compliance with Section 101 of the Tongass Timber Reform Act of 1990 (TTRA) which states in part that the Secretary of Agriculture “...shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass national Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each Planning cycle” (Forest Plan ROD, page 37).
 - The Selected Alternative includes very little effect to the inventoried roadless area acres. Approximately 625 acres of partial harvest and 3.8 miles of low-impact road, all of which will be put in storage upon completion of the timber sale, will occur in the 190,230-acre Cleveland Inventoried Roadless Area. These activities will occur along the northern edge of the roadless area, adjacent to roaded projects on the Wrangell Ranger District.
3. I have elected to exceed Forest Plan Standards and Guidelines for VCU 7210 by selecting an alternative which prescribes uneven-aged management for 100 percent of the project area. This decision balances the public and other agency concerns about harvest on the Cleveland Peninsula without unduly compromising the objectives of the Timber Production LUD.
4. The Selected Alternative D harvests approximately 11.2 MMBF of timber, which would contribute to meeting market demand for timber.
5. The Selected Alternative D provides positive economic returns while meeting the previously mentioned resource objectives. The actual value of timber sold would be determined during the timber sale appraisal process. See the Timber and Silviculture and the Socioeconomic sections in Chapter 3 of the Final EIS for more information.
6. The Selected Alternative D exceeds the visual quality objectives (VQOs) as specified from the priority travel routes and key viewsheds. All units in the Selected Alternative would be managed using uneven-aged prescriptions, resulting in little visual change noticeable from existing conditions to the casual visitor. Actual viewpoints used in the analysis for meeting the VQOs for each viewshed are specified in the planning record and in Chapter 3, Scenery.
7. The Selected Alternative D closes all roads in the project area by putting them into storage. In addition, it includes constructing only a low-impact road to further reduce impacts on the resources. (See Transportation.)

8. The Selected Alternative D utilizes primarily helicopter yarding to accomplish the goals and objectives of resource protection as well as to help mitigate watershed, wildlife, social and visual resource concerns. Helicopter logging is scheduled for most of the project area. The Selected Alternative exceeds the Forest Plan American Marten Standards and Guidelines. Uneven-aged management will ensure that all harvest units retain stand structure distributed across the units.
9. The Selected Alternative D builds 2.2 miles of low-impact road through a medium Old-growth Reserve. It also builds road and constructs one log transfer facility within an eagle nest protection area and an estuary buffer. The Forest Plan allows road building in these areas if no other viable means of access exists. There is no other means of roaded access to the project area. Unroaded access is possible (Alternative C) but determined economically unfeasible after detailed study. In making my decision I have evaluated the trade-off between resource protection, social values and timber sale economics. The Selected Alternative presents the best balance among the three.

Issues and How they are Addressed

In the following summary, I detail how key issues are addressed within the Selected Alternative.

Key issues for the Emerald Bay project were identified through public and internal scoping. Similar issues were combined into one statement where appropriate. The following two issues are within the scope of the project decision. These issues are addressed through the Proposed Action and alternatives. Six additional concerns were considered but determined not to be significant for the project decisions to be made; they are either already resolved in the Forest Plan, or their resolution falls outside the scope of the Emerald Bay project.

Issue 1 - Timber Sale Economics

This issue is the economic viability of proposed timber sales, and the potential employment and revenues generated by the project. It includes concerns over defining economic viability, and determining the point at which implementation costs make the sale, and its related employment benefits, prohibitive.

Alternatives B and D would result in positive stumpage values under all (high, current and low) market conditions. Alternative C results in negative stumpage values under all market conditions. Alternative B produced the highest stumpage rate (\$95.00/MBF at current market) using traditional even-aged harvest and roading techniques. Alternative D, the Selected Alternative, balances economic return with public concern for roading on the Cleveland Peninsula and in the medium Old-growth Reserve (OGR). It provides a positive return (\$30.00/MBF at current rates) while attempting to minimize the effects of road building.

The Emerald Bay project's range of action alternatives would harvest from 10.8 MMBF (Alternative C) to 16.3 MMBF (Alternative B). The Selected Alternative D provides 11.2 MMBF.

In weighing the relative merits of the alternatives related to this issue, I am very much aware that all of the comparisons are estimates and actual revenues, employment, and costs can vary widely in different market conditions. Even with this variability, however, I believe the comparisons made in the Final EIS provide a useful and meaningful way to compare alternatives to one another.

Highlights of the Selected Alternative D include the following:

- It does the best job of balancing protection of this portion of the Cleveland Peninsula and timber supply, while still providing an economically viable timber sale.
- It produces a positive estimated net value.

- It produces 11.2 MMBF of economically viable timber to help support the local forest products industry.

Issue 2 - Roadless and Road Construction

This issue is construction of roads into areas available for timber management but currently unroaded, and management of those roads following timber harvest. Of particular concern is road building on the Cleveland Peninsula's Inventoried Roadless Area #528 as well as roading through a medium Old-growth Reserve (OGR).

Although the portion of the Cleveland Peninsula which extends northward into the Wrangell Ranger District has undergone timber harvest and road building, many people expressed the desire to see the southern portion of the Cleveland Peninsula remain unroaded. Others objected to both roading and timber harvest. This led to the initial development of Alternative C, which had no roads and produced uneven-aged stands of timber, but turned out to be economically infeasible under the most recent revision of the R10 appraisal system. While Alternative B is the most economically positive alternative, it does not address the issue of the Cleveland Peninsula remaining unroaded. Alternative D attempts to respond to both issues.

Of the roaded alternatives, the Selected Alternative D has the lowest amount of new road construction. It proposes construction of 3.8 miles of new road, 2.2 miles of which cross the medium OGR. This road would be built to minimize impacts on the resources. Alternative B proposes 6.2 miles of new road construction, while Alternative C proposes no road construction. None of the action alternatives would impact more than one half of one percent, or 625 acres of the 190,230 total acres of Inventoried Roadless Area #528.

Highlights of the Selected Alternative D include the following:

- It balances new road construction with timber economics.
- It proposes a low-impact road design.
- It closes all roads.

The intrinsic social value placed on the roadless character of the Cleveland Peninsula played an important role in my decision to select Alternative D, as a compromise that will retain a forested appearance with the uneven-aged harvest treatments and build as little road as is possible to make the timber harvest an economically viable offering.

Public Involvement

Public involvement has been instrumental in identifying issues, formulating alternatives, and influencing this decision. Public scoping and involvement activities for the Emerald Bay project are listed in Chapter 1 and Appendix B of the Final EIS.

Schedule of Proposed Activities (SOPA)

The Emerald Bay Timber sale first appeared on the SOPA in the spring of 1997.

Notice of Intent (NOI)

A Notice of Intent was published in the *Federal Register* on August 17, 1998 when it was decided that an EIS was to be completed for the project.

Public Mailing

In August 1998 a letter providing information and seeking public comment (scoping document) was mailed to approximately 140 individuals and groups that had previously shown interest in Forest Service projects in Southeast Alaska. The mailing included 7 Federal agencies, 5 State agencies and divisions, 5 Tribes, 7 municipal offices, and 106 businesses, organizations, and individual citizens. Approximately 28 responses to this initial mailing were received.

Local News Media

Announcements about the project were printed in the August 13, 1998 edition of the *Wrangell Sentinel* and the August 15-16, 1998 weekend edition of the *Ketchikan Daily News*. A scoping document describing the project was also placed in the August 15-16, 1998 weekend edition of the *Ketchikan Daily News*.

Public Meetings

A public meeting was held in Ketchikan on August 24, 1998 to provide information and discuss potential areas of concern and/or interest that should be addressed in the Emerald Bay project.

Availability of Draft EIS for Public Comment

Availability of the Draft EIS was announced in the *Federal Register* on January 28, 2000 and through notices in local papers. The deadline for public comment was April 15, 2000. Documents were also mailed to Federal and State agencies, Native and municipal offices, and others who requested them.

Public Information Meeting

A public information meeting was held on March 2, 2000 to introduce a fourth alternative, D, which combined elements of Alternatives B and C. Alternative D was developed to include new economic information which came to light after the Draft EIS was published.

Project Update Letter

A project update letter was sent to the Draft EIS mailing list on March 20, 2000 incorporating comments from the public meeting and detailing Alternative D. In order to allow adequate time for comments, this letter extended the comment period on the Draft EIS to May 5, 2000 for a total of 98 days.

Analysis and Incorporation of Public Comment

Twenty-two agencies, organizations, and individuals submitted written comments on the Emerald Bay Draft EIS. The IDT analyzed and incorporated these comments into the Final EIS. Public comments, along with the Forest Service's responses, are listed in Appendix B of Emerald Bay Final EIS. Availability of the Draft EIS was announced in the *Federal Register* and through notices in local media.

Comments received were roughly divided into three categories. Many respondents were apprehensive over our proposals to build road and harvest timber on the Cleveland Peninsula. They felt the roadless nature of the Cleveland should be retained. They referenced a letter from the governor of Alaska corroborating that statement. Others were concerned that we were setting a precedent by proposing to build a road through a medium Old-growth Reserve. They cited possible impacts to fish and wildlife resources and wondered what allowances we would make. Others expressed concern over the economic viability of proposing uneven-aged management prescriptions in an isolated patch of land designated as Timber Production. They also questioned whether these prescriptions would meet the objectives of the Timber Production LUDs and/or the Purpose and Need for the project.

The IDT evaluated and responded to these comments (Appendix B-Final EIS) and incorporated as many of them as possible into the Final EIS. My selection of Alternative D resulted from these comments, balancing resource concerns with the need for an economically viable offering.

Tribal Consultation

Consultation regarding potential cultural sites and outlining the results of archeological surveys per Section 106 of the National Historic Preservation Act was accomplished with the Wrangell Cooperative Association.

Coordination with Other Agencies

From the time scoping was initiated, meetings and site visits with interested State and Federal agencies have occurred. Issues were discussed and information was exchanged.

An interagency team of biologists representing the U.S. Fish and Wildlife Service, Alaska Department of Fish and Game, and the Forest Service reviewed small Old-growth Reserves for location and function in the project area. They also conducted a site visit of the LTF and proposed road sites in early June 2000. The team did not recommend any changes to the adjacent small Old-growth Reserves.

A Biological Assessment was prepared and sent to the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service as part of the Section 7 consultation under the Endangered Species Act.

Coordination with the State of Alaska included the Division of Governmental Coordination, the Department of Fish and Game, and the Department of Environmental Conservation. The Forest Service determined that implementation of the Emerald Bay project will affect the coastal zone and that the standards and guidelines and site-specific prescriptions applicable to the Emerald Bay project meet or exceed the enforceable policies of the Alaska Forest Resources and Practices Act and its implementing regulations. As such, this project was determined consistent to the maximum extent practicable with the Alaska Coastal Management Program. The Alaska Division of Governmental Coordination has objected to this determination, proposing Alternative C as an alternate measure. Despite several attempts to develop a compromise alternate measure, we have been unable to reach agreement. Because we are unable to implement Alternative C, as it is economically infeasible, we plan to retain our existing authority subject to the CZMA to proceed with implementation of a project, on National Forest System lands, that we have determined to be "consistent to the maximum extent practicable" and over which a serious disagreement exists (15 CFR 930.110-116).

The Final EIS identifies the agencies that were informed of and/or involved in the planning process (see the Distribution List in Chapter 4 of the Final EIS).

Alternatives Considered for Detailed Study

A wide range of alternatives was considered for the Emerald Bay project. Alternative A is the No-action Alternative, under which the project area would have no timber harvest or road construction at this time, and would remain subject to natural changes only. Alternatives B, C and D represent different means of satisfying the project Purpose and Need by responding with different emphases to the key issues discussed in Chapter 1. Maps of all alternatives considered in detail are provided at the end of Chapter 2. Larger-scale maps of the alternatives are contained in the project planning record.

Four alternatives are considered in detail. Each alternative is consistent with the Forest Plan. This section provides a discussion of: 1) the emphasis or intent of each alternative, and 2) various resource outputs associated with implementation. Alternatives are compared and summarized in Chapter 2 of the Final EIS. All figures listed below are approximate. The two small Old-growth Habitat Reserves adjacent to the project area would remain in their current locations, as mapped in the Forest Plan under all alternatives. In the Emerald Bay drainage (VCU 7210), no additional timber harvest is likely to be scheduled for 50 to 100 years because of the 100-year rotation requirement in the Forest Plan and /or the regulation schedule for the uneven-aged harvests.

Alternative A

Emphasis

This alternative proposes no new timber harvest from the Emerald Bay project area at this time. It does not preclude timber harvest from other areas at this time, or from the Emerald Bay

project area at some time in the future. This alternative serves as a benchmark by which effects of the action alternatives can be measured. The CEQ regulations (40 CFR 1502.14d) require that a "No Action" alternative be analyzed in every EIS. This alternative represents the existing condition against which all other alternatives are compared. It also responds to the roadless and road construction issue because if selected, no project would occur. The Alternative A (Existing Condition) map shows the distribution of vegetation associated with no new timber harvest. No timber harvest outputs are associated with this alternative.

Alternative B

Emphasis

This alternative proposes to make available the most timber volume that is feasible to harvest at this time while meeting all Forest Plan direction. The emphasis is to maximize the contribution of the Emerald Bay project area to the timber products industry, and industry-related employment and income. Alternative B would harvest 599 acres of commercial forest land in 8 harvest units producing 16.3 million board feet (MMBF) of timber. New road construction totals 6.2 miles.

Alternative B would most likely be harvested in a single sale of 16.3 MMBF, utilizing both even-aged and uneven-aged silvicultural prescriptions. Average harvest/construction costs would be \$243.00 per thousand board feet (MBF). Of this alternative's total harvest, 70 percent uses less expensive cable and shovel harvest systems. On average, Alternative B harvests 2.6 MMBF for every mile of road constructed.

Alternative C

Emphasis

The emphasis of this alternative is to move the project area toward the Forest Plan's desired future conditions while minimizing potential effects to areas of key wildlife and fish habitat not already covered by Forest Plan direction. Additionally, it addresses the concerns for roading on the Cleveland Peninsula and roading through a medium Old-growth Reserve.

Alternative C would harvest 625 acres of commercial forest land in 10 harvest units producing 10.8 million board feet (MMBF) of timber utilizing uneven-aged silvicultural prescriptions whereby a minimum of 50 percent of stand basal area would be left standing. Average size of harvest units is 63 acres with no openings exceeding 2.5 acres. No road construction is planned.

Alternative C would be sold as one timber sale. Average harvest/construction costs would be \$504.00 per thousand board feet (MBF). Of this alternative's total harvest, 100 percent uses helicopter harvest systems. All of the units fall into the highest cost/MBF helicopter costing comparison category. Based on detailed economic analysis in the Final EIS, we believe that Alternative C could not be sold because it does not represent an economically viable sale package. (Refer to the Final EIS, Chapter 3, pg. 3-36).

Alternative D

Emphasis

The emphasis of this alternative, the Selected Alternative, is to move the project area toward the Forest Plan's desired future conditions by harvesting timber while balancing road construction and protection for the Cleveland Peninsula with timber sale economics. One low-impact road would be constructed to decrease helicopter-yarding distances. This road would remain closed to the public throughout the life of the sale and be put in storage (seeded, barriers to traffic, bridges removed) immediately following the completion of the timber sale. All units would be harvested using the same uneven-aged silvicultural prescriptions as in Alternative C.

Alternative D would harvest 625 acres of commercial forest land in 10 harvest units producing 11.2 million board feet (MMBF) of timber utilizing uneven-aged silvicultural prescriptions whereby a minimum of 50 percent of stand basal area would be left standing. The average unit size is 63 acres. New low-impact road construction totals 3.8 miles.

Alternative D would be sold as one timber sale. Average harvest/construction costs would be \$319.00 per thousand board feet (MBF). This alternative would utilize uneven-aged prescriptions primarily through helicopter-only harvest methods. All but two of the units fall

Environmentally Preferable Alternative

into the lowest cost/MBF helicopter costing comparison category. On average, Alternative D harvests 2.9 MMBF for every mile of road constructed.

No single factor can be used to determine which alternative is environmentally preferable. Maintaining the basic productivity of the land and the quality of lifestyle of the local residents are vitally important.

Implementation of Alternative A, the No-action Alternative, would result in the least environmental disturbance and is therefore the environmentally preferable alternative. This is based on the comparison of all the alternatives shown in the Table 2-5 of Chapter 2 in the Emerald Bay Final EIS.

All alternatives considered in detail have varying levels of environmental effects depending upon the emphasis of the alternative. Implementation of Alternative C would cause the least adverse environmental effects of the action alternatives as it proposes 100 percent helicopter yarding of uneven-aged prescriptions with no road building. Alternative D has significantly fewer effects for most resources than Alternative B, due to building fewer miles of road and crossing fewer large streams. Alternative D also increases economic returns by reducing the average helicopter-yarding distance.

Reasons for Not Selecting Other Alternatives

I did not select Alternative A (No Action) because it did not meet either component of the Purpose and Need described previously. Alternative A does provide a baseline to compare the action alternatives and it also represents one resolution to the issue concerning the roadless character of the Cleveland Peninsula and the resource concerns about the road construction, as discussed more fully below and in Chapter 1 of the Final EIS.

I decided not to select Alternative B because it did not respond to the local and national concerns with intensive management on the Cleveland Peninsula including strong comments from the State of Alaska. This alternative involves clearcuts and a more extensive road network in an area prized for its lack of such development. Alternative B does not meet the specific project objectives for the Emerald Bay area to provide an alternate approach with minimal road building and uneven-aged techniques to maintain a diverse range of structures and a variety of wildlife habitats. Alternative B is important as a comparison to fully disclose the trade-offs of the Selected Alternative D with a more traditional timber harvest approach.

Alternative C, while originally the Preferred Alternative in the Draft EIS, was not selected because it simply is not economically feasible. Without some mechanism to decrease the costs associated with long helicopter-yarding distances, all of the units fall into the highest cost/MBF helicopter costing comparison category. The best way to overcome the economic situation was by shortening the yarding distances through construction of low-standard road, as in Alternative D. The road will be closed and revegetated upon completion of the project with limited environmental effects, and fully discussed in Chapter 3 of the Final EIS.

Alternatives Considered But Not Analyzed in Detail

- An alternative which accesses the project from the Wrangell Ranger District was discussed but dropped from further study. Topographic constraints preclude access from that direction.
- Another alternative, which proposed traditional cable harvest and clearcut prescriptions on the portions of Units 1 and 12 accessible by road, was also considered. This alternative represents a minor recombination of aspects of Alternatives B and D, and is within the range of alternatives already considered in detail. Economics and environmental impacts fall within the range described in the EIS for Alternatives B and D, and are, overall, close to those shown for Alternative D. On the other hand, as it would involve clearcutting, this alternative raises some of the same public issues as Alternative B. Because it is substantially duplicated by other alternatives and falls within the range already considered and available for selection, there was no need to fully develop this alternative for detailed independent consideration.
- An alternative which proposed harvesting less than 8 MMBF was investigated in direct response to a public comment. This would require using even-aged prescriptions, cable yarding, and road construction in order to make an economically viable offering with the effects being similar to Alternative B. While this would result in less volume harvested, the road construction and clearcuts would make this alternative less responsive than the Selected Alternative to the commenter's overall concerns.
- Various combinations of alternatives were also considered, including combining Alternative C, helicopter-logging methods with Alternative B, even-aged prescriptions. Adding clearcuts to Alternative C would not improve the economics since it would require moving large volumes of low-value wood over long distances by helicopter. The Selected Alternative allows some of this low-value wood to remain standing as future stand structure and provides for shorter helicopter-yarding distances for the removal of the remainder. This alternative was also less responsive to public concerns over intensive management.
- Another combination alternative considered was Alternative B, even-aged management with a shorter road network, as described in Alternative D. Because a key component of the Purpose and Need for this project was to provide insights into uneven-aged management techniques, this alternative would not meet this and the environmental effects would be similar to Alternative B. Since the effects of these combination alternatives would be someplace in between the effects disclosed for alternatives considered in detail, displaying them separately would not help to sharply define the issues or provide a clear basis for choice among the options, so they were not considered in detail.

Planning Record

The planning record for this project includes the Draft EIS, Final EIS, Forest Plan, Alaska Regional Guide, all material incorporated by reference, and other critical materials produced during the environmental analysis of this project. The planning record is available for review at the Ketchikan-Misty Fjords Ranger District.

Mitigation

Mitigation measures are prescribed to avoid, reduce, minimize, or eliminate the adverse effects of actions. These measures were applied in the development of the project alternatives, including the Selected Alternative, and in the design of the harvest units and road corridors.

Mitigation measures applicable to the Selected Alternative D include those contained in the standards and guidelines of the Forest Plan, Alaska Regional Guide, and applicable Forest Service Manuals and Handbooks. The ROD Appendices 1 and 2 include Unit and Road Cards that incorporate site-specific mitigation and are adopted as part of this decision and would be implemented. Measures to avoid or minimize adverse environmental effects of the project have been incorporated into the individual resource sections of Chapter 3 of the Final EIS. One specific mitigation related to monitoring of any ATV use following harvest activities has been added as included under the Selected Alternative prescription and is discussed in detail in the Road Cards (Appendix 2 of this ROD) and in the Transportation section of Chapter 3 of the Final EIS.

Monitoring

A monitoring program is the process by which the Forest Service evaluates whether or not the resource management activities of the Final EIS have been implemented as specified and whether or not the steps identified for mitigating the environmental effects were effective. One objective of this strategy is to conduct implementation and effectiveness monitoring of Forest Service BMPs and other Forest Plan Standards and Guidelines. The Tongass National Forest, in cooperation with other interested agencies, has developed a monitoring strategy and action plan to achieve this objective. Implementation monitoring in the Emerald Bay project area would follow the guidelines outlined in this action plan. Standards and guidelines to be monitored at specific sites are determined through a review of unit/road cards, fish habitat reports, and other documentation. Additional monitoring to address the concern for an increase in All Terrain Vehicle (ATV) access will also be incorporated. (See the Monitoring section of Chapter 2 and the related resource sections of Chapter 3 in the Final EIS for details).

Findings Required By Law

National Forest Management Act

The National Forest Management Act requires specific determinations in this Record of Decision including: consistency with the Forest Plan and the Alaska Regional Guide, a determination of clearcutting as the optimal method of harvesting, and specific authorizations of created openings over 100 acres in size.

Tongass Land Management Plan and Alaska Regional Guide

This decision is consistent with the Alaska Regional Guide and the revised Forest Plan. I have reviewed the management direction, standards and guidelines, and the schedule of activities for the VCUs included in the Selected Alternative. I find the Selected Alternative to be consistent with these elements. The activities authorized in this decision are consistent with the standards and guidelines and management prescriptions of the revised Forest Plan.

Clearcutting as the Optimal Method of Harvesting

No units would be harvested using clearcut systems as a result of this decision.

Created Openings Over 100 Acres in Size

No created openings would exceed 100 acres.

Tongass Timber Reform Act

Harvest units were designed with no less than 100-foot buffer zones for all Class I streams and Class II streams which flow directly into Class I streams as required in Section 103 of the TTRA. The actual widths of these buffers follow Forest Plan Riparian Standards and Guidelines that greatly exceed TTRA requirements.

Endangered Species Act

Actions authorized in the Selected Alternative are not anticipated to have a direct, indirect, or cumulative effect on any threatened or endangered species in the Emerald Bay project area. A Biological Assessment is included in the project planning record. I have determined that this action would not have any adverse impacts on any threatened or endangered species.

Bald Eagle Protection Act

Management activities within 330 feet of an eagle nest site are restricted by an Interagency Agreement between the Forest Service and the U.S. Fish and Wildlife Service to facilitate compliance with the Bald Eagle Protection Act. The Selected Alternative D includes road and LTF construction within 330 feet of a known bald eagle nest. A variance from the U.S. Fish and Wildlife Service will be requested.

Clean Water Act

The design of harvest units and roads for the Selected Alternative was guided by standards, guidelines, and direction contained in the Forest Plan, Alaska Regional Guide, Section 404 of the Clean Water Act and applicable Forest Service manuals and handbooks. The ROD Appendices 1 and 2, Unit Design and Road Cards, contain specific details on practices prescribed to prevent or reduce nonpoint sediment sources. Site-specific application and monitoring of BMPs is expected to comply with applicable State Water Quality Standards Regulations. These regulations provide for variances from anti-degradation requirements and water quality criteria. The harvest and roadbuilding operators are responsible for compliance, including obtaining any variance required by the State, and will be monitored for compliance by the Forest Service.

Essential Fish Habitat

The potential effects of the Emerald Bay Timber Sale project on essential fish habitat have been evaluated. For specific information regarding essential fish habitat and the potential impacts, refer to the Emerald Bay project area Fisheries Resource Reports and the Fisheries Section of Chapter 3 of the Final EIS. Analysis completed in the cumulative effects sections for fisheries, soils, and water indicate no significant changes to Riparian Management Areas (RMAs) and floodplains due to proposed management activities. The Forest Service completed essential fish habitat consultation with the National Marine Fisheries Service by including an essential fish habitat assessment in the Draft EIS.

In evaluating the potential effects on essential fish habitat the following factors were considered:

- Forest Plan Standards and Guidelines for process group riparian buffers have been applied in all instances on Class I, II, and III streams;
- the BMPs described in the unit and road cards for the Selected Alternative provide assurance of water quality and aquatic habitat protection for all freshwater streams and marine waters affected by the project;
- the exclusion of harvest on slopes greater than 72 percent. Approximately 15 acres of slopes greater than 72 percent have been field reviewed by professional soil scientists who determined harvest of these slopes can be accomplished with no damage to other resources. These are noted on the specific unit cards; and
- road construction in the Selected Alternative includes log stringer bridges for all crossings of Class I or II streams.

Based on the above factors, the risk of measurable impact on essential fish habitat has been minimized in the project area. I have determined that the Selected Alternative is unlikely to adversely affect essential fish habitat.

National Historic Preservation Act

Heritage resource surveys of various intensities have been conducted in the project area. The State Historical Preservation Officer has been consulted, and the provisions of 36 CFR, Part 800 are being complied with. Forest Service timber sale contracts contain enforceable measures for protecting any undiscovered heritage resource that might be encountered during sale operations. I have determined, consistent with the Forest Service direction on heritage resources, that no sites eligible for listing on the National Register of Historic Places would be affected. We have completed the Section 106 review for all timber harvest related activities displayed in the Final EIS. This includes roads and units in all alternatives.

Federal Cave Resource Protection Act of 1988

The actions in the Selected Alternative would not have a direct, indirect, or cumulative effect on any cave resource. There are no known occurrences of carbonate rock and associated cave resources within the project area. Field reconnaissance identified no areas of concern within the project area.

ANILCA Section 810

A subsistence evaluation was conducted for the four alternatives considered in detail for the Emerald Bay Final EIS, in accordance with Alaska National Interest Lands Conservation Act (ANILCA) Section 810. This evaluation indicates that the potential foreseeable effects from the alternatives in the Emerald Bay project area do not indicate a significant possibility of a significant restriction of subsistence uses for deer, bear, furbearers, marine mammals, waterfowl, salmon, other finfish, shellfish, and other foods such as berries and roots. See the Subsistence section in Chapter 3 of the Final EIS.

Consumers, Civil Rights, Minorities and Women

No negative impacts to the civil rights of individuals or groups, including minorities and women, are anticipated to be associated with this project. Additional information can be found in the Forest Plan Final EIS Chapter 3 and Appendix H.

Executive Orders

Executive Order 11988

Executive Order 11988 directs Federal agencies to take action to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. The numerous streams in the project area make it impossible to avoid all floodplains during timber harvest and road construction. The design of the proposed developments and the application of BMPs combine to minimize adverse impacts on floodplains.

Executive Order 11990

Executive Order 11990 requires Federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. Road access to the project area cannot avoid wetlands. Techniques and practices required by the Forest Service serve to maintain the wetland attributes including values and functions. Soil moisture regimes and vegetation on some wetlands may be altered in some cases; however, these altered acres would still be classified as wetlands and function as wetlands in the ecosystem. It is estimated there would be only minimal loss of wetlands with the low-impact road proposed in the Selected Alternative. Section 404(f)(1)(A) and (E) of the Federal Clean Water Act exempts silvicultural, timber harvesting, and related road construction activities from permit requirements for the discharge of dredge and fill materials in wetlands.

Executive Order 12898

Executive Order 12898 directs Federal agencies to identify and address the issue of environmental justice, i.e., human health and environmental effects of agency programs that disproportionately impact minority and low-income populations. The Executive Order specifically directs agencies to consider patterns of subsistence hunting and fishing when an agency action may affect fish or wildlife. The issue of environmental justice has been addressed through the Emerald Bay environmental analysis by identifying low-income or Native communities that may be affected by the proposed action; by ensuring that scoping and public involvement activities reach those communities; by evaluating the effects of the proposed action on such communities; and by documenting the analysis. Detailed discussion of potential project effects on communities and subsistence is presented in the Socioeconomic Environment and Subsistence sections of Chapter 3.

The Emerald Bay project would not have a disproportionate effect on Native or low-income communities, based on:

- the Forest Plan Final EIS analysis of the effects on the community of Meyers Chuck.
- the absence of nearby minority or low-income communities which could be affected by this project.
- the Forest Plan ROD's determination that implementation of the Forest Plan is consistent with maintenance of Environmental Justice.
- the Emerald Bay project falls within the scope of the Forest Plan.

Executive Order 12962

Executive Order 12962 requires Federal agencies to evaluate the effects of proposed activities on aquatic systems and recreational fisheries. The Selected Alternative attempts to minimize the effects upon aquatic systems through project design, watershed assessment, application of Forest Plan Standards and Guidelines, BMPs, and site-specific mitigation measures. Recreational fishing opportunities would remain essentially the same because aquatic habitats are protected through implementation of BMPs and riparian buffers.

The Coastal Zone Management Act

The Coastal Zone Management Act of 1976, as amended, while specifically excluding Federal lands from the coastal zone, requires that a Federal agency's activities be consistent with the enforceable policies of a State's coastal management program to the maximum extent practicable when that agency's activities affect the coastal zone.

The Alaska Coastal Management Program incorporated the Alaska Forest Resources and Practices Act (Forest Practices Act) as the applied standards and guidelines for timber harvesting and processing. The Forest Service Standards and Guidelines, BMPs, and mitigation measures described in the Emerald Bay Final EIS meet or exceed the level of protection provided by the enforceable policies of the State Forest Practices Act.

Additional information requirements were agreed to on March 2, 2000 when an interagency Memorandum of Understanding (MOU) was signed. Although the Emerald Bay Draft EIS was issued prior to this MOU, we attempted to fulfill its requirements. A consistency determination letter was mailed to the Division of Environmental Coordination on October 2, 2000.

Based on the analysis in the Final EIS, review of the Alaska Forest Practices Act, and comments from State agencies on the Draft EIS, I have determined that the Selected Alternative is consistent to the maximum extent practicable with the enforceable policies of the Alaska Coastal Management Program. As previously discussed, the State has objected to this determination.

Federal and State Permits, Licenses, and Certifications

Prior to implementation of the proposed timber sale, various permits must be obtained from Federal and State agencies. Administrative actions on these permits would be initiated after the EIS is filed with the Environmental Protection Agency (EPA). The agencies and their responsibilities are listed below.

U.S. Army Corps of Engineers

Approval of discharge of dredged or fill material into waters of the United States (Section 404 of the Clean Water Act of 1977, as amended)

Approval of construction of structures or work in navigable waters of the United States (Section 10 of the Rivers and Harbors Act of 1899)

U.S. Coast Guard

Coast Guard Bridge Permit (in accordance with the General Bridge Act of 1946) required for all structures constructed across navigable waters of the U.S.

U.S. Environmental Protection Agency

Storm water discharge permit

National Pollutant Discharge Elimination System review (Section 402 of the Clean Water Act)

State of Alaska, Department of Environmental Conservation

Certification of compliance with Alaska Water Quality Standards (Section 401 Certification)

Solid Waste Disposal Permit (Section 402 of the Clean Water Act)

State of Alaska, Department of Natural Resources

Authorization for occupancy and use of tidelands and submerged lands

Additional Applicable Policy and Legislation

The Roadless Area Conservation Rule

On January 12, 2001 the Roadless Area Conservation Rule was published in the Federal Register. This rule, scheduled for implementation on May 12, 2001, would have prohibited road construction and most timber harvest in previously unmanaged portions of inventoried roadless areas. This rule contains mitigation language for the Tongass National Forest exempting Timber Sale projects for which a Notice of Availability of a Draft Environmental Impact Statement has been published in the Federal Register prior to publication of this rule. The Emerald Bay project meets these exemption criteria. Implementation of the Roadless Area Conservation rule itself has been stayed by action of a Federal court in Idaho. However, as explained above, the rule would not apply to the Emerald Bay project in any case.

Transportation Policy

The National Roads Policy that became effective January 12, 2001 established new requirements for analysis when planning to construct, reconstruct or decommission roads on National Forest System lands. The Policy exempted projects from requiring a project scale Roads Analysis Process (RAP) if the project decision is made by January 12, 2002, but does require a Forest-wide RAP be completed within 2 years. While the Forest-wide RAP is being completed, the interim requirements for road construction/reconstruction in inventoried roadless and contiguous unroaded areas continue to apply (FSM 7712.16). In the interim, decisions to construct roads within inventoried roadless areas are reserved by the Chief unless a Forest Plan revision has been signed. In that case decision-making authority is delegated to the Regional Forester based on a "compelling need." However, if an area-specific Roads Analysis

has been approved for the project, the Regional Forester may delegate authority to the Forest Supervisor. An area-specific Roads Analysis Plan has been prepared for the VCU 7210 and is available in the planning record.

The Tongass Timber Reform Act directs the Forest Service: “to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle.” This obligation simply cannot be met without harvest from roadless areas such as Emerald Bay as envisioned in the TLMP. I have determined that TTRA’s requirements represent a compelling need for the Emerald Bay Timber Sale. Without the short segment of road, no timber sale would be economically feasible. Without the timber sale, TTRA’s provisions cannot be fulfilled.

National Forest System Land and Resource Management Planning Rule

This final rule, an update to 36 CFR Parts 217 and 219, became effective November 9, 2000. Implementation of the Planning Rule has since been delayed to May 2002. It describes the framework for National Forest System land and natural resource planning, reaffirms sustainability as the overall goal for National Forest System planning and management, establishes requirements for the implementation, monitoring evaluation and amendment of land and resource management plans, and guides selection and implementation of site-specific actions. Although this rule is intended to guide Forest-level planning, the Selected Alternative is not inconsistent with its requirements for project-level planning.

Implementation Process

Implementation of this decision may occur immediately, as this decision is not subject to appeal under 36 CFR 215. However, permitting and approval of the log transfer facility and preparation and advertisement of the timber sale will take time. At this point, we do not expect to be able to sell the Emerald Bay Timber Sale until summer, 2002.

This project will be implemented in accordance with Forest Service Manual (FSM) and Handbook (FSH) direction for Timber Sale Project Implementation in FSM 2431.3 and FSH 2409.24. This direction provides a bridge between project planning and implementation and would ensure execution of the actions, environmental standards, and mitigations approved by this decision, and compliance with the TTRA and other laws.

Implementation of all activities authorized by this ROD would be monitored to ensure that they are carried out as planned and described in the Final EIS and ROD Appendices 1 and 2, Unit Design and Road Cards, unless modified consistent with direction in the FSM 2432.3 and FSH 2409.18.

These cards are an integral part of this decision because they document the specific resource concerns, management objectives, and mitigation measures to govern the layout of the harvest units and construction of roads. These cards would be used during the implementation process to assure that all aspects of the project are implemented within applicable standards and guidelines and that resource impacts would not be greater than those described in the Final EIS. Similar cards would be used to document any changes to the planned layout, as the actual layout and harvest of the units occurs with project implementation. The implementation record for this project would display:

- each harvest unit, transportation facility, and other project components as actually implemented,
- any proposed changes to the design, location, standards, and guidelines, or other mitigation measures for the project, and
- the decisions on the proposed changes.

Process for Change During Implementation

Proposed changes to the authorized project actions will be subject to the requirements of the NEPA and other laws concerning such changes.

In determining whether and what kind of further NEPA action is required, the Forest Service will consider the criteria in 40 CFR 1502.9(c) and FSH 1909.15, Sec. 18, for whether to supplement an existing EIS. In particular, the agency considers whether the proposed change is within the context of the intent of the Selected Alternative as planned and already approved, and whether the change is relevant to environmental concerns. Connected or interrelated proposed changes regarding particular areas or specific activities will be considered together in making this determination. Cumulative impacts will be considered.

The intent of field verification is to confirm inventory data and to determine the feasibility and general design and location of a unit or road, not to locate the final boundaries or road locations. Minor changes are expected during implementation to better meet on-site resource management and protection objectives. Minor adjustments to unit boundaries are also likely during final layout for the purpose of improving logging system efficiency. This would usually entail adjusting the boundary to coincide with logical logging setting boundaries. Many of these minor changes would not present sufficient potential impacts to require any specific documentation or action to comply with applicable laws. Some minor changes may still require appropriate analysis and documentation to comply with FSH 1909.15, Sec. 18.

Right to Appeal

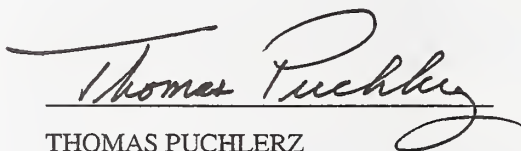
This decision is subject to administrative appeal. Organizations or members of the general public may appeal this decision according to Title 36 Code of Federal Regulations (CFR) part 215. The appeal must be filed within 45 days of the date that legal notification of this decision is published in the *Juneau Empire*, the official newspaper of record. The written Notice of Appeal must be filed with:

Regional Forester, Alaska Region
U.S. Department of Agriculture, Forest Service
P.O. Box 21628
Juneau, AK 99802-1628

It is the responsibility of those who appeal a decision to provide the Regional Forester with sufficient written evidence and rationale to show why the decision by the Forest Supervisor should be changed or reversed. This written Notice of Appeal must:

1. State that the document is a Notice of Appeal filed pursuant to 36 CFR Part 215;
2. List the name, address, and, if possible, the telephone number of the appellant;
3. Identify the decision document by title and subject, date of the decision, and name and title of the Responsible Official;
4. Identify the specific change(s) in the decision that the appellant seeks or portion of the decision to which the appellant objects;
5. State how the Responsible Official's decision fails to consider comments previously provided, either before or during the comment period specified in 36 CFR 215.6 and, if applicable, how the appellant believes the decision violates law, regulation or policy.

For additional information concerning this decision, contact Jeremiah C. Ingersoll, District Ranger, Ketchikan-Misty Fiords Ranger District, 3031 Tongass Ave, Ketchikan, AK 99901, or call (907) 228-4100.



THOMAS PUCHLERZ

Forest Supervisor

9-13-01

Date

EMERALD BAY ROD



Appendix 1

Unit Cards

Appendix 1

Unit Cards

General Mitigation Measures

These general measures apply to all units and roads in the Emerald Bay project. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook).

Air Quality Protection

Design projects to control air pollution impacts and to ensure that the predicted emissions from all pollution sources do not exceed ambient air quality standards, as specified under the Alaska Administration Code, Title 18, Chapter 50. (AIR 112).

Soil/Water Protection during Timber Sale Planning

Incorporate soil and water resource considerations into timber sale planning. Include site-specific considerations, site preparation, designating water quality protection needs on sale area maps, locating and designing landings for good drainage and dispersion of water, incorporating erosion control and timing responsibilities into the Operating Schedule, scheduling and enforcement of erosion control during and at completion of the timber sale, including non-recurring "C" provisions to protect soil and water resources in timber sale contracts, and seeking an environmental modification of the contract if new circumstances or conditions indicate that soil, water, or watershed damage may occur. (BMP 13.1, 13.2, 13.3, 13.4, 13.9, 13.10, 13.11, 13.12, 13.14, 13.17, and 13.18)

Soil/Water Protection during Road Development

Implement measures to reduce surface erosion and drainage interruption related to transportation. This includes water barring and cross-draining roads using ditches and culverts to prevent water running long distances over roads, closure, and seeding and fertilizing cut- and fill slopes. (BMPs 14.1, 14.2, 14.3, 14.5, 14.7, 14.8, 14.9, 14.10, 14.11, 14.12, and 14.19)

Soil/Water Protection during Road Management

Conduct road maintenance and snow removal operations to minimize disruption of road surfaces, embankments, ditches, and drainage facilities, and use road closures or other measures to keep road surface and road site erosion at low or background levels. (TRAN 23-I, BMPs 14.20 and 14.23)

Management of Road Use to Reduce Erosion and Sedimentation

Control access and manage road use to reduce the risk of erosion and sedimentation from road surface disturbance especially during the higher risk periods associated with high runoff and spring thaw conditions. (BMP 14.22)

Soil/Water Protection during Development of Rock Sources, LTFs, & Other Facilities

Implement measures to reduce surface erosion and other impacts on soils and water from gravel sources and quarries, LTFs, sortyards, and other facilities. (BMPs 14.18, 14.19, 14.25, 14.26, and 14.27)

LTF Siting

Site LTFs in locations which will best avoid or minimize potential impacts on water quality, aquatic habitat, wildlife, and other resources. (TRAN 214-V, WILD 112, and BMP 14.4)

Camp and Facility Siting

Site camps and other facilities sufficiently far from important seasonal bear concentrations, raptor nest sites, and other important wildlife habitats, to avoid or minimize wildlife-human conflicts. (WILD 112).

Sanitation at Facilities

Comply with all regulations for the disposal of sewage at camps, LTFs, and other facilities; require incinerators and/or other bear-proof garbage disposal methods at work camps. (FAC 1, FAC 22, WILD 112-VI, BMP 12.10, 12.15, and 12.16).

Accidental Spills

Implement measures and plans to prevent the contamination of soil and water from accidental spills of petroleum products and hazardous substances. (BMP 12.8 and 12.9)

Heritage Site Discovery

Suspend work if a heritage site is discovered during project implementation. Authorize resumption of work only after consultation with the State Historic Preservation Office is complete.

Karst/Cave Inventory

Inventory karst landscapes and cave resources prior to initiation of project planning. (KARST-III)

Maximum Size of Created Openings

Limit created openings to a maximum size of 100 acres. (TIM 114-IV)

Maintain Advance Regeneration

Maintain advance regeneration within the unit to meet reforestation needs and stand objectives. (TIM 111-2-I)

Maintain Minor Tree Species

Selectively maintain minor species (e.g., yellow-cedar, western redcedar, Pacific yew), where appropriate for the site, as viable components of future stand, for vegetative diversity, and for seed trees. (TIM 111-2-I, TIM 114-II)

Windthrow Hazards Along the Boundaries of Protected LUDs

Take measures that protect LUDs which prohibit timber harvest activities from harvested related windthrow. (TIM 114-XII)

Certification of Reforestation

Certify that every unit that receives a final harvest meets or surpasses the stocking guidelines and certification standards (FSH 2409.17) within 5 years. (TIM 24)

Wetland Protection

Minimize the loss of all wetlands, but particularly the higher-value wetlands (especially fens), and minimize the adverse impacts of land management activities on wetlands; follow Executive Order 11990 and the BMPs. (WET-I, WET-III, BMP 12.5)

Beach and Estuary Fringe Protection

Avoid harvest within the beach and estuary fringe; avoid road construction within this zone, except where no feasible alternative exists. (BEACH 2)

Non-Development LUD Protection

Avoid timber harvest impacts and minimize road construction within non-development LUDs such as Old-growth Habitat, Remote and Semi-remote Recreation, and Wild and Scenic River corridors. Road through medium Old-growth Reserve will be built to ensure minimal impact,

closed to the public at all times, and put in storage immediately following completion of silvicultural activities.

Connectivity Between Old-growth Reserves

Provide corridors of old-growth forest between and among medium and large Old-growth Reserves. Where sufficient connectivity does not exist, or where the minimum Forest Plan criteria are not met, relocate or redesign mapped, small Old-growth Reserves. (WILD 112-XVIII)

Marine Mammal Protection

Ensure that Forest Service permitted or approved activities are conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching whales, dolphins, porpoises, seals, and sea lions. Site camps, LTFs, and other facilities are to be located at least 1 mile away from known Steller sea lion haulouts. (TE&S-I)

There will be no project-related boating activity within 200 yards of Easterly Island, and no project-related air traffic within 1,500 vertical feet and 1/2 mile horizontal distance of Easterly Island.

Mapping Discrepancies

Minor discrepancies in mapping may occur, particularly when mapping various buffer widths at a scale designed to fit an 8.5 by 11 inch page. Where these discrepancies occur, the information contained in the unit card narrative applies.

Contract Provisions

Where applicable, mitigation requirements will be included as provisions of the timber sale contract.

Site-specific Mitigation Measures Incorporated into Unit and Road Design

The specific mitigation measures that are applied to selected units and/or roads in a project are identified in this section. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook). These measures are listed on each unit or road card as necessary.

Minerals and Geology

M1 - Protection of Mineral Development Improvements: Protect known mineral development improvements, such as mine claim markers, by specifications in timber sale and road construction contracts. (MG 12-II)

K1 - Avoid Effects on Karst/Cave Features: Avoid road construction or modify harvest unit design to avoid impacts on karst or cave features. (KARST-III4)

Fish, Water, and Soils

F1 - Riparian Buffers: Establish no-harvest and selective cut buffers along streams and around lakes to protect riparian areas as defined by the Riparian Standards and Guidelines. Protect buffers from adjacent harvest activities (e.g., directional felling, split yarding, suspension requirements). (RIP 2, BMP 12.6)

F2 - Directional Felling Along Buffers: Trees identified for harvest will be felled to avoid riparian areas designated for “no commercial harvest” and stream courses. (RIP 2-II)

F3 - Class III/IV Stream Protection: Split yard and directionally fall trees away from Class III and IV streams without buffers. (RIP 2-II)

F4 - Yarding Across Streams: Fully suspend logs where yarding is to be done across streams or the full length of a stream or drainage. (RIP 2-II)

F5 - Fish Passage: Maintain fish passage at Class I and II stream road crossings using properly designed stream-crossing structures (consult FSH 2090). (FISH 112-IV)

F6 - Use of Bridges: Install bridges at designated stream crossings to minimize the amount of sediment entering streams and/or to ensure good fish passage (TRAN 214-II).

F7 - Instream Construction Timing Restrictions: Implement timing restrictions for instream construction activities for the protection of anadromous and resident fish. (RIP 2-II and BMPs 14.6, 14.10, 14.14, and 14.17)

F8 - Siting of Road-Stream Crossings: Modify the location of road-stream crossings to correspond with stable stream reaches. (TRAN 214-II)

F9 - Routing of Roads near Streams: Modify road routes to avoid locations near fish-bearing streams. (TRAN 214-II)

F10 - Routing of Roads through Wetlands and Other Sensitive Areas: Modify location of Forest Development Roads to minimize impact to wetlands, floodplains, estuaries, and tidal meadows. (TRAN 214-III)

F11 - Harvesting Timber in/near Wetlands and Floodplains: Modify unit design or logging system to avoid or minimize damage to muskegs, other wetlands, or floodplains. (S&W 112-I, BMP 12.4 and 12.5)

F12 - Management of Road Use to Reduce Erosion and Sedimentation: Control access and manage road use to reduce the risk of erosion and sedimentation from road surface disturbance especially during the higher risk periods associated with high runoff and spring thaw conditions. (BMP 14.22)

F14 - Road Storage: Establish self-maintaining drainages across roads, remove bridges and reestablish natural drainage patterns, and establish vegetation cover on the road to prevent erosion during periods of inactivity. (TRAN 22-I)

F15 - Avoid Harvesting Very High Hazard Soils: Modify unit design to avoid very high mass movement areas, including slopes > 72%. (S&W 112-I, BMP 13.5)

F16 - Avoid Road Development on Very High Hazard Soils: Avoid road construction along unstable slopes, including slopes > 67%. (S&W 112-I and BMP 13.5)

F17 - Soil/Water Protection along Roads on Very High Hazard Soils: Where avoidance of road construction along unstable slopes is not possible, take special precautions with fill to prevent soil erosion, stream sedimentation, and mass wasting or require full bench construction and end hauling of excavated material. (S&W 112-I, TRAN 214-II, and BMP 14.7)

F18 - Suspension Requirements to Protect Soils: Use partial- to full-suspension logging systems in areas with high mass movement potential. (S&W 112-I, BMP 13.9)

F19 - Steep, Class IV, V-notch Streams: Establish no-harvest buffers along steep, Class IV, v-notch streams with high erosion potential (S&W 112-I, BMP 12.6 and 13.16)

Timber

T2 - Maintain Minor Tree Species: Selectively maintain minor species (e.g., yellow-cedar, western reedcedar, Pacific yew), where appropriate for the site, as viable components of future stand, for vegetative diversity, and for seed trees. (TIM 111-2-I, TIM 114-II)

Wildlife and Threatened/ Endangered/ Sensitive Species

W6 - Selection Harvest: Provide for greater habitat diversity on a stand level over time by using the selection method (uneven-aged system) as a harvest prescription (see Appendix G to Forest Plan Final EIS). (WILD 112-III)

W7 - Leaving Nonmerchantable Trees and Snags: Provide for greater habitat diversity on a stand level over time by leaving most nonmerchantable trees and snags after harvest. (WILD 112-III)

W8 - Restrictions on Helicopter Yarding: Modify helicopter yarding routes and/or timing of helicopter activity to avoid important wildlife habitats (e.g., mountain goat summer/kidding habitat or active eagle nest sites. (WILD 112-XII)

W9 - Road Closures: Close roads to motorized use to protect brown bears, wolves, marten and other large predators and furbearers from overharvest. (WILD 112)

W10 - Protection of Goshawk Nests: Avoid harvest and road construction near confirmed and probable northern goshawk nest sites according to Forest-wide Standard & Guideline TE&S-II, J, 1. (TE&S-II)

W11 - Timing of Activities and Disturbance at Goshawk Nests: Avoid continuous disturbance within 600 feet of an active goshawk nest from March 15 to August 15 (TE&S-II).

W13 - Protection of Bald Eagle Nest Trees/Other Sites and Timing of Activities: Avoid all activity, modify unit or road design, and/or limit timing of activities, near bald eagle nest trees, perch trees, and winter roost sites in accordance with the Interagency Agreement established with the U.S. Fish and Wildlife Service. (WILD 112-V)

W20 - Protection of Trumpeter Swan Nesting, Brooding, and Wintering Areas and Timing of Activities: Avoid all activity, modify unit or road design, and/or limit timing of activities, within 0.5 mile of wetlands used by nesting, brood-rearing, and wintering trumpeter swans to avoid impacts. (TE&S-II)

W24 - Protection of Wolf Dens: Maintain a 1,200-foot forested buffer, where available, around known active wolf dens. (WILD 112-XI)

W25 - Timing of Activities and Disturbance of Denning Wolves: Avoid road construction within 600 feet of known active wolf dens. (WILD 112-XI)

W28 - Management of Marten Habitat: Maintain important features of forest stand structure in harvest units in order to manage high-value marten habitat according to Forest-wide Standard & Guideline WILD 112-XVI, A, 2. (This applies to VCUs in higher risk biogeographic provinces). (WILD 112-XVI)

W29 - Rare or Endemic Terrestrial Mammals: Modify units or roads to avoid habitats supporting rare or endemic terrestrial mammals that may represent unique populations with restricted ranges. (WILD 112-XVII)

W31 - Protection of Sensitive Plant Species: Modify unit boundaries or road routing to avoid habitats supporting populations of sensitive plant species. (TE&S-II)

W32 - Protection of Candidate Species or Species of Concern: Modify units, roads, or other facilities to avoid or reduce impacts on U.S. Fish and Wildlife Service-designated Candidate species and Species of Concern. (TE&S-III)

W33 - Corridors Between Old-Growth Habitat Reserves: Avoid harvest in order to maintain corridors of old-growth forest between Old-growth Habitat Reserves and other natural setting LUDs at the landscape scale. (WILD 112-XVIII)

Heritage Resources

H1 - Avoid Direct Effects on Heritage Resource Sites: Avoid road construction or harvest unit placement in areas with heritage resource value. (HER-IV)

H2 - Avoid Indirect Effects on Heritage Resource Sites: Provide for protection from indirect effects on heritage resource sites near proposed harvest units and roads. (HER-V4)

H3 - Mitigation through Data Recovery: Mitigate valuable heritage resource sites through data recovery. (HER-IV)

Recreation and Tourism

R1 - Access Restrictions for Recreation: Close or restrict access on roads to maintain remoteness of areas after harvest (REC 112-II)

Visuals

V5 - Patch/Strip Clearcutting: Reduce visual contrast with adjacent areas by using patch or strip clearcutting (two-aged or uneven-aged systems) as a harvest prescription (see Appendix G to Forest Plan Final EIS). (VIS 11-III)

V6 - Selection Harvest: Reduce visual contrast with adjacent areas by using the selection method (uneven-aged system) as a harvest prescription (see Appendix G to Forest Plan Final EIS). (VIS 11-III)

V7 - Leaving Nonmerchantable Trees: Reduce visual contrast with adjacent areas by leaving most nonmerchantable trees after harvest. (VIS 11-III)

V8 - Modification of Unit Boundaries: Modify unit boundaries to assure that the harvest unit meets the proposed VQO in partial retention and retention areas. (VIS 11-II)

V9 - Treatment of Rock Sources: Locate rock sources off the road along Visual Priority Routes, so that rock source development is not apparent from the road and/or use a landscape architect in the planning/design of rock pits. (VIS 11-II)

V10 - Roadside Cleanup: Provide for roadside cleanup of ground-disturbing activities in partial retention and retention areas. (VIS 11-II)

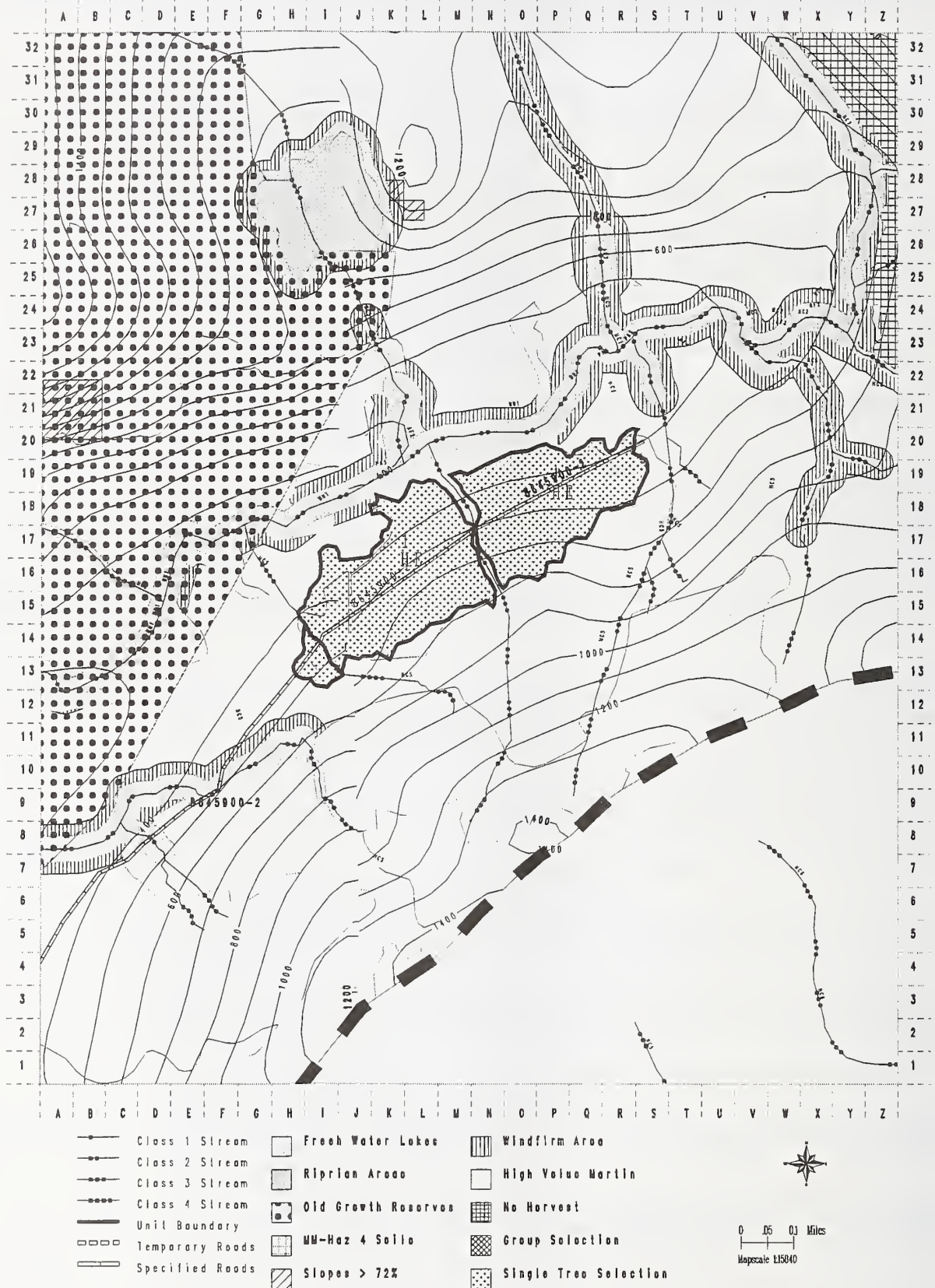
V11 - LTF Design: Use low profile LTF design to minimize visibility from Visual Priority Travel Routes and Use Areas. (VIS 11-II)

V12 - Temporary LTFs: Use temporary LTF and incorporate rehabilitation measures into project analysis and the contract package to reduce long-term visual effects in partial retention areas. (VIS 11-II)

Subsistence

S1 - Access Restrictions for Subsistence: Close or restrict access on roads to maintain remoteness of areas after harvest to address subsistence issues. (SUB-I)

Emerald Bay Project Area Rod Unit Cord 7210-1



Emerald Bay Project Area ROD Unit Card

Unit 1

Harvest Acres: 89
Aerial Photo: 1973

MBF Volume: 1,595
Flight #: 29

CCF Volume: 3,393
Photo #: 31

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

There are approximately 14 acres of Forested Wetlands in the northwest corner of unit. The proposed helicopter yarding in conjunction with single-tree selection prescription will provide the necessary resource protection (BMP 12.5) (F11)

Soils

The soils within the unit lie on slopes less than 60 percent gradient and are not landslide prone. Mapped soils are deep and somewhat erodible. Helicopter yarding in conjunction with single-tree selection will provide adequate resource protection (BMP 13.9). Should any cable-yarding systems be used, partial suspension requirements are to be implemented. (F18)

Fisheries/Hydrology

The north unit boundary is adjacent to the stream buffer on Birch Creek. The riparian area is defined by a timber type change. A windfirm boundary has been established next to the no-cut buffer.

Class II MM1 adjacent to north unit boundary: Greater of 120 foot or RMA buffer required. (F1, F2)

Class II PA5 flows through the middle of the unit: 100-foot buffer required. Upper reaches a Class III HC5 requires slope break buffer. (F1, F2)

Class III HC5 on east side of unit; requires slope break buffer. (F1, F2)

Class IV HC5 flows through southwest unit corner. Directional felling and split yarding. Follow BMPs 12.6, 12.6a and 13.16. (F)

Silvicultural Prescription (Single-tree Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (89 acres)

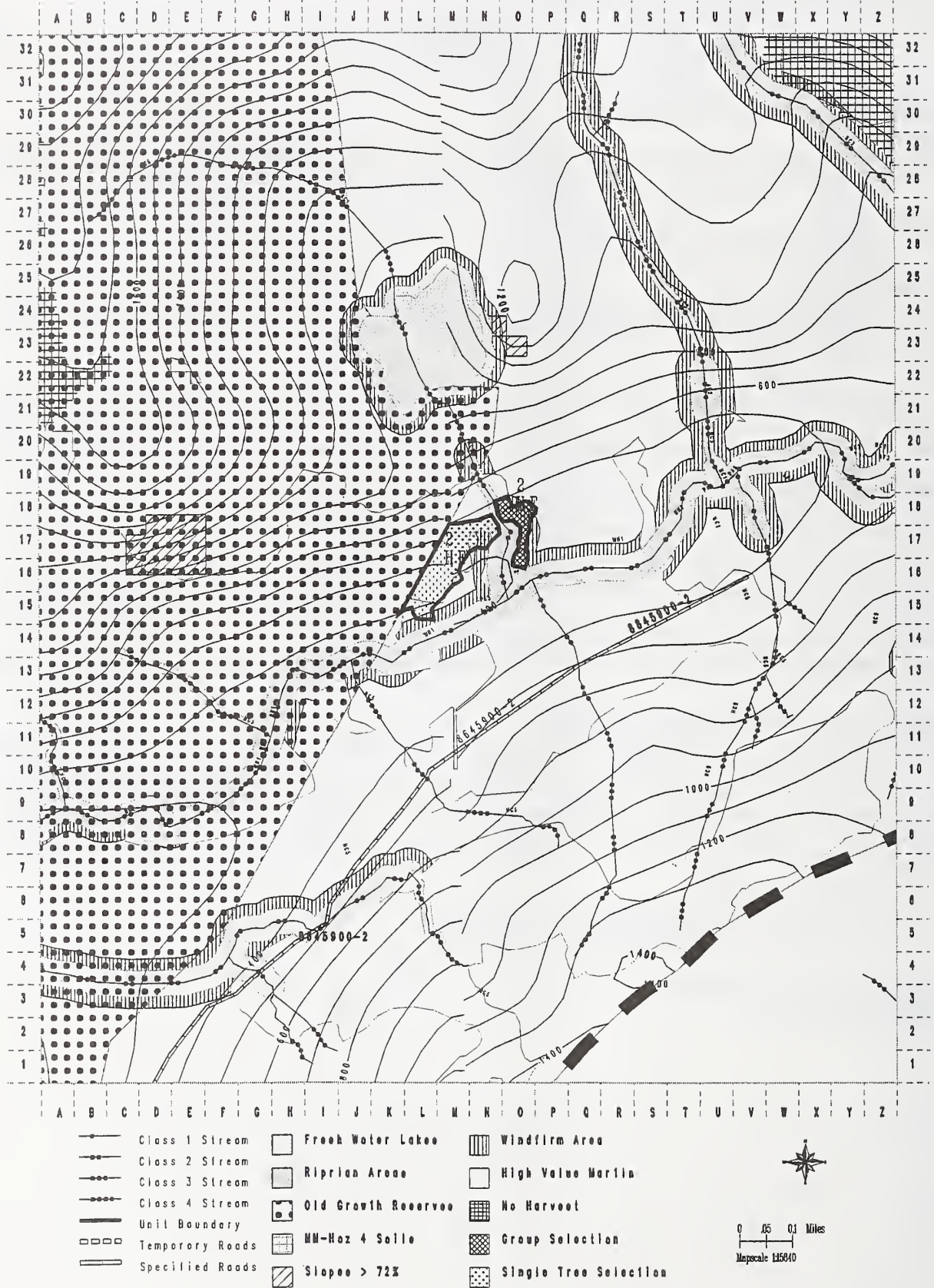
Use single-tree selection to remove:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-2



Emerald Bay Project Area ROD Unit Card

Unit 2

Harvest Acres: 16
Aerial Photo: 1973

MBF Volume: 287
Flight #: 28

CCF Volume: 610
Photo #: 216

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

Unit is mapped as a Forested Upland and Forested Wetland complex on gently sloping ground. Helicopter yarding in conjunction with single-tree selection prescription will provide protection to the wetland resources (BMP 12.5 and 13). (F11)

Soils

The soils within the unit have a low landslide potential. Erosion potential is also fairly low (see Hydrology – Chapter 3).

Fisheries/Hydrology

The northern tips of unit are next to a shallowly incised bedrock and colluvial-controlled Class III HC5 channel.

Class II AF2: a buffer that is the greater of 140 foot or active portion of alluvial fan is required. (F1, F2)

Class III HC5: no timber harvest within the V-notch, slopebreak buffer required. Follow BMPs 12.6, 12.6a, 13.9. (F1, F2)

Silvicultural Prescription (Single-tree and Group Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (14 acres)

Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

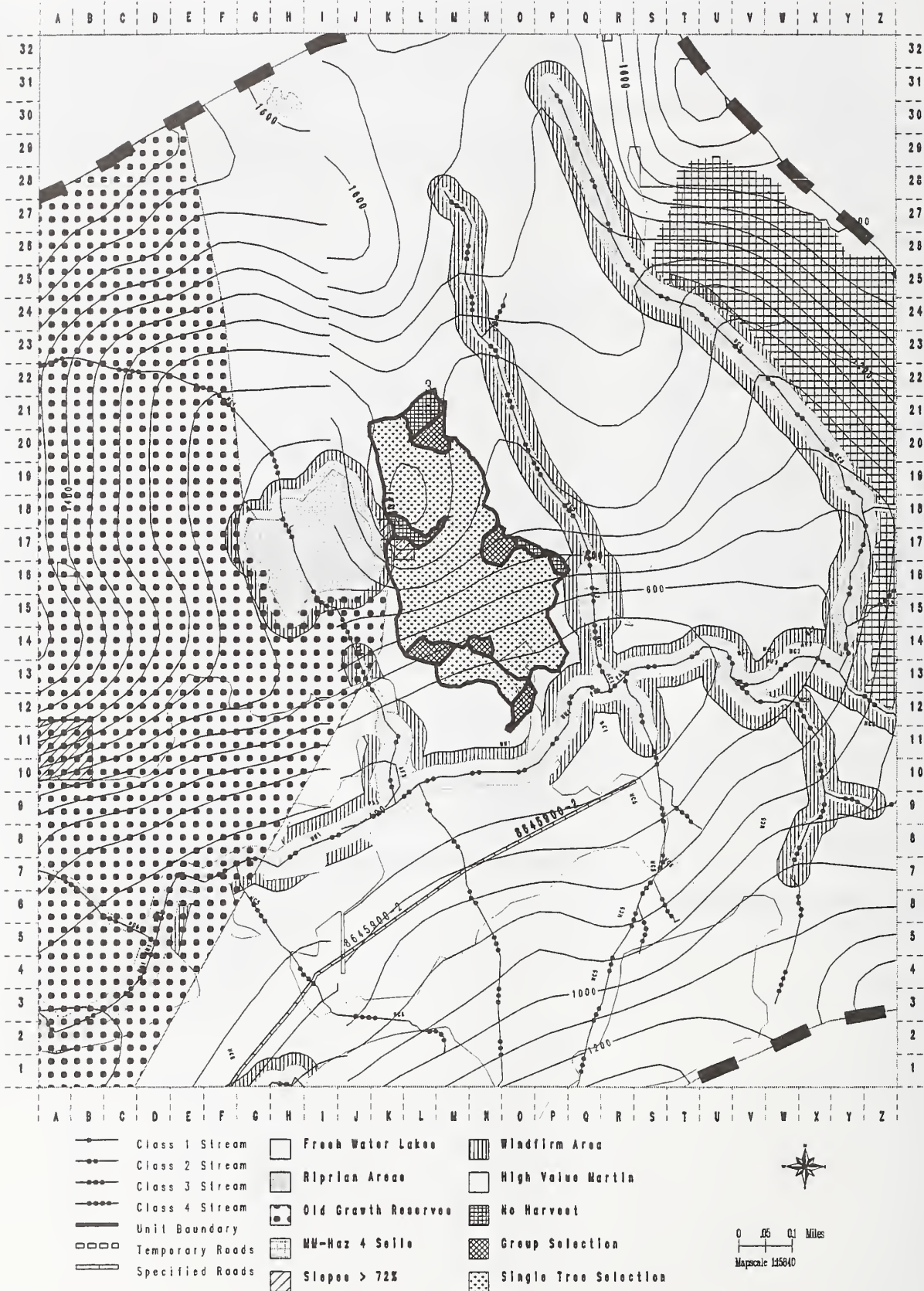
Group Selection (2 acres)

Target basal area will be removed in groups, the resulting openings not to exceed 2 acres in size.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-3



Emerald Bay Project Area ROD Unit Card

Unit 3

Harvest Acres: 71
Aerial Photo: 1973

MBF Volume: 1,272
Flight #: 29

CCF Volume: 2,707
Photo #: 32

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

Almost all of the unit lies on a Forested Wetland and Forested Upland complex. The wetlands occur on moderately sloping to steep mineral soils. Resource objectives will be met by helicopter yarding in conjunction with single-tree selection prescription (BMP 12.5 and 13.9). (F11)

Soils

Soils within the unit are steep with an estimated 15 acres on slopes over 72 percent gradient. Per recommendation by soils scientist, 4 of the 15 acres have been placed a leave island and the remaining slopes over 72 percent are will be harvested using single-tree selection helicopter yarding. (BMPs 13.5, 13.9, and 13.2). (F18)

Fisheries/Hydrology

Unit borders Birch Creek to the south and a water-quality stream to the east. The Class III water quality stream has formed a small alluvial deposit on the eastern boundary; the no-cut buffers include the alluvium deposit.

Class II HC1 adjacent to southeast unit corner: no harvest within the greater of 100 feet or the V-notch. (F1, F2)

Class III HC5 adjacent to east unit boundary: no timber harvest within the V-notch or on the alluvium deposit, slopebreak buffer required. (F1, F2)

Class II PA5 adjacent to south boundary: greater of 100 foot or RMA buffer required. Follow BMPs 12.6, 12.6a and 13.16. (F1, F2)

Silvicultural Prescription (Single-tree and Group Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (63 acres)

Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

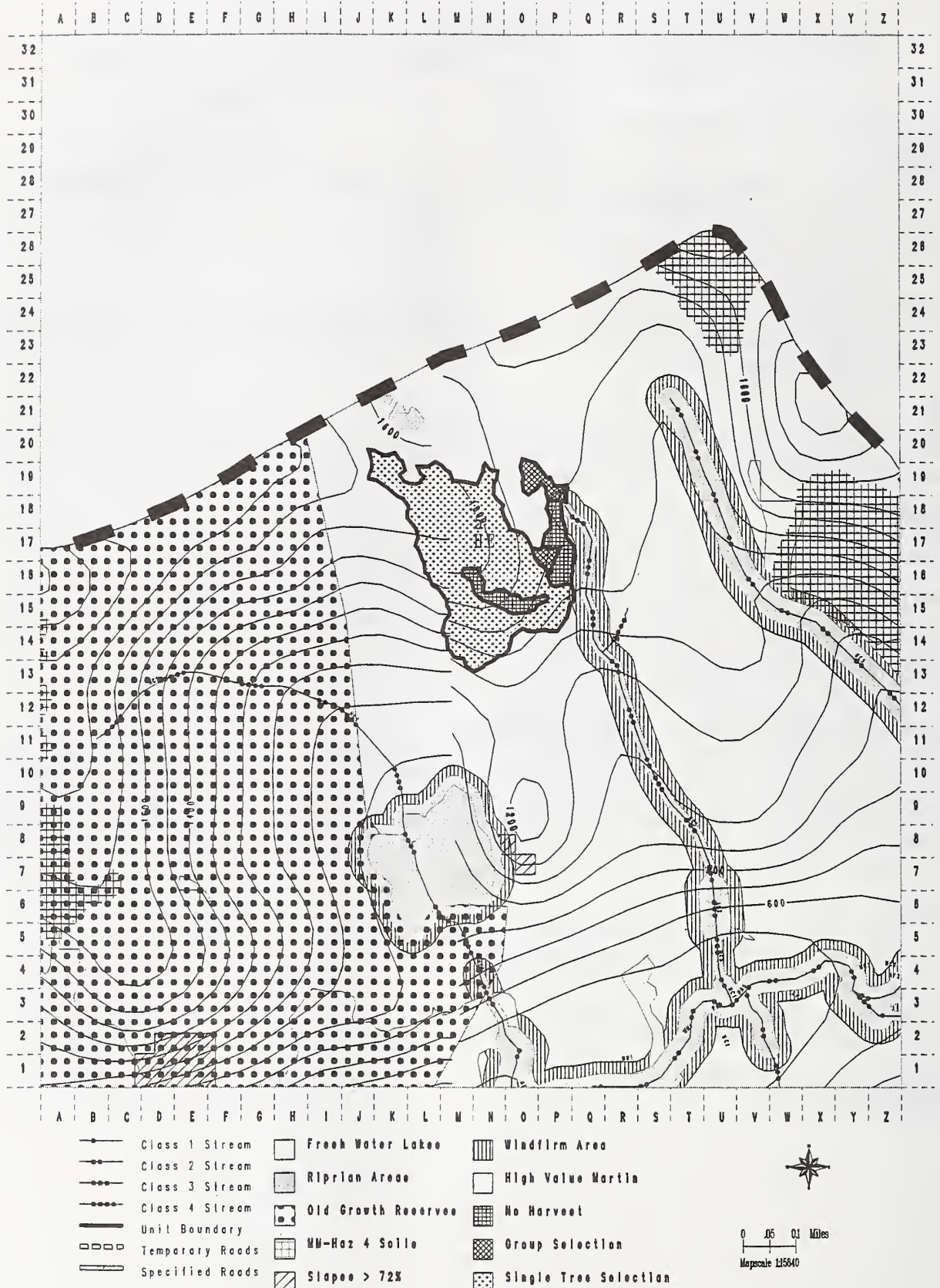
Group Selections will be applied to five areas (8 acres).

Target basal area will be removed in groups, the resulting (five) openings not to exceed 2 acres in size.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-5



Emerald Bay Project Area ROD Unit Card

Unit 5

Harvest Acres: 47
Aerial Photo: 1973

MBF Volume: 842
Flight #: 29

CCF Volume: 1,792
Photo #: 32

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

The entire unit is mapped as a complex of Forested Wetlands and Forested Uplands. The Forested Wetlands are on mineral soils on moderately to steeply sloping ground. Helicopter yarding in conjunction with single-tree selection prescription will provide protection to the wetland resources (BMP 12.5 and 13.9). (F11)

Soils

There is approximately 1 acre of slopes greater than 72 percent gradient within unit. The pitch is very short and landslide potential appears to be low (BMP 13.5). Helicopter yarding in conjunction with single-tree selection prescription will meet resource objectives (BMP 13.9). (F18)

Fisheries/Hydrology

Class III HCS adjacent to tip of east unit boundary: no timber harvest within the V-notch. (F1, F2)

Silvicultural Prescription (Single Tree and Group Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class. Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (44 acres)

Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

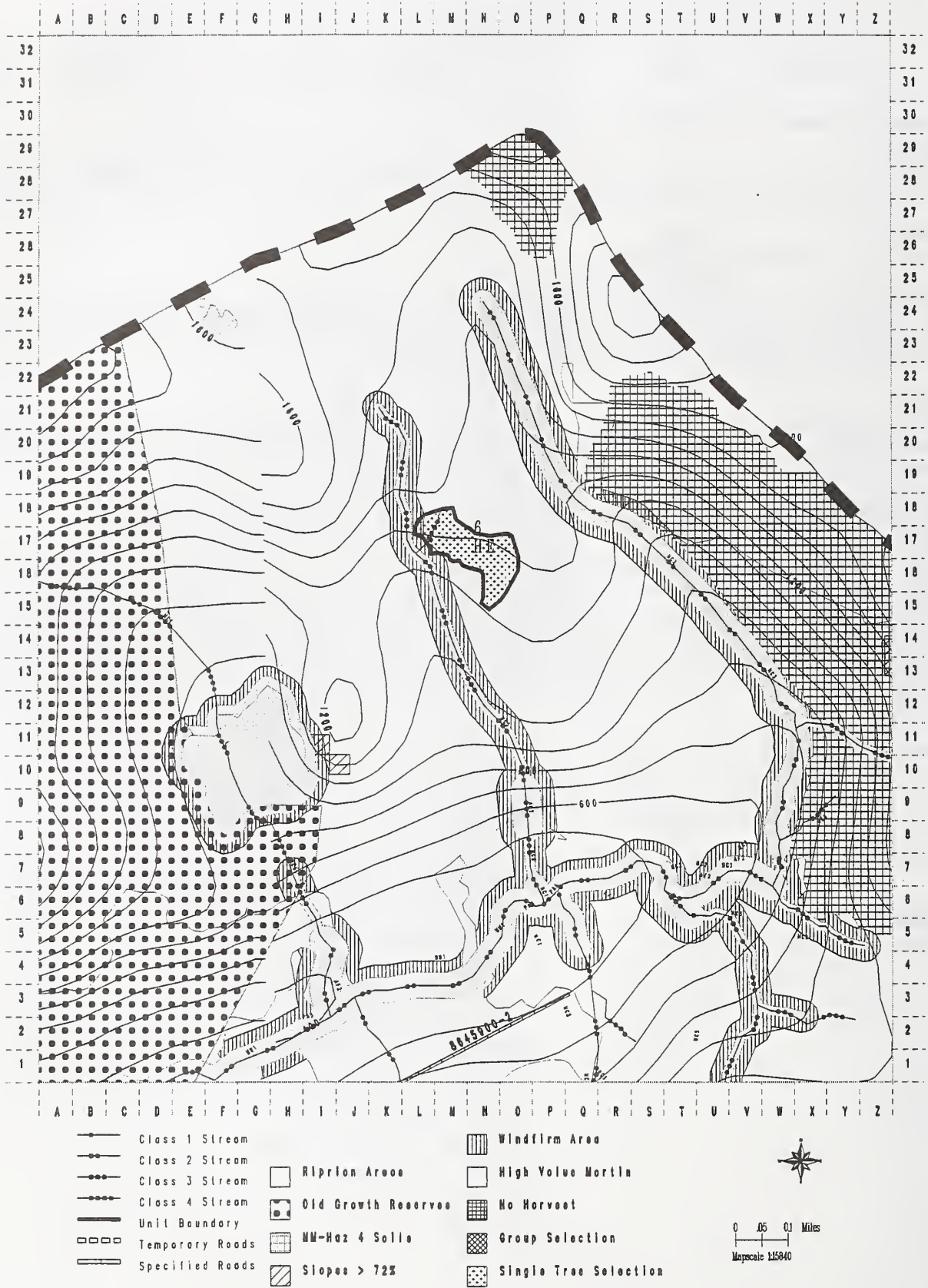
Group Selection will be applied to two areas (3 acres).

Target basal area will be removed in groups, the resulting opening not to exceed 2 acres in size.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-6



Emerald Bay Project Area ROD Unit Card

Unit 6

Harvest Acres: 11
Aerial Photo: 1973

MBF Volume: 197
Flight #: 29

CCF Volume: 419
Photo #: 32

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

The entire unit is mapped as Forested Wetland, cedar-hemlock-blueberry plant association. Helicopter yarding in conjunction with single-tree selection prescription will provide protection to the wetland resources (BMPs 12.5, 13.9). (F11)

Soils

There are 2 acres of slopes greater than 72 percent in the unit associated with a small cliff. The soils in the unit have a low to moderate mass movement index. Helicopter yarding in conjunction with single-tree selection prescription will provide adequate resource protection (BMP 13.9). (F18)

Fisheries/Hydrology

Class III HC5 adjacent to west unit boundary: no timber harvest within the V-notch. (F1, F2)

Class IV HC5 is within the northern portion of the unit. Sale administrator should assess need for directional felling during harvest. (F3)

Silvicultural Prescription (Single-tree Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (11 acres)

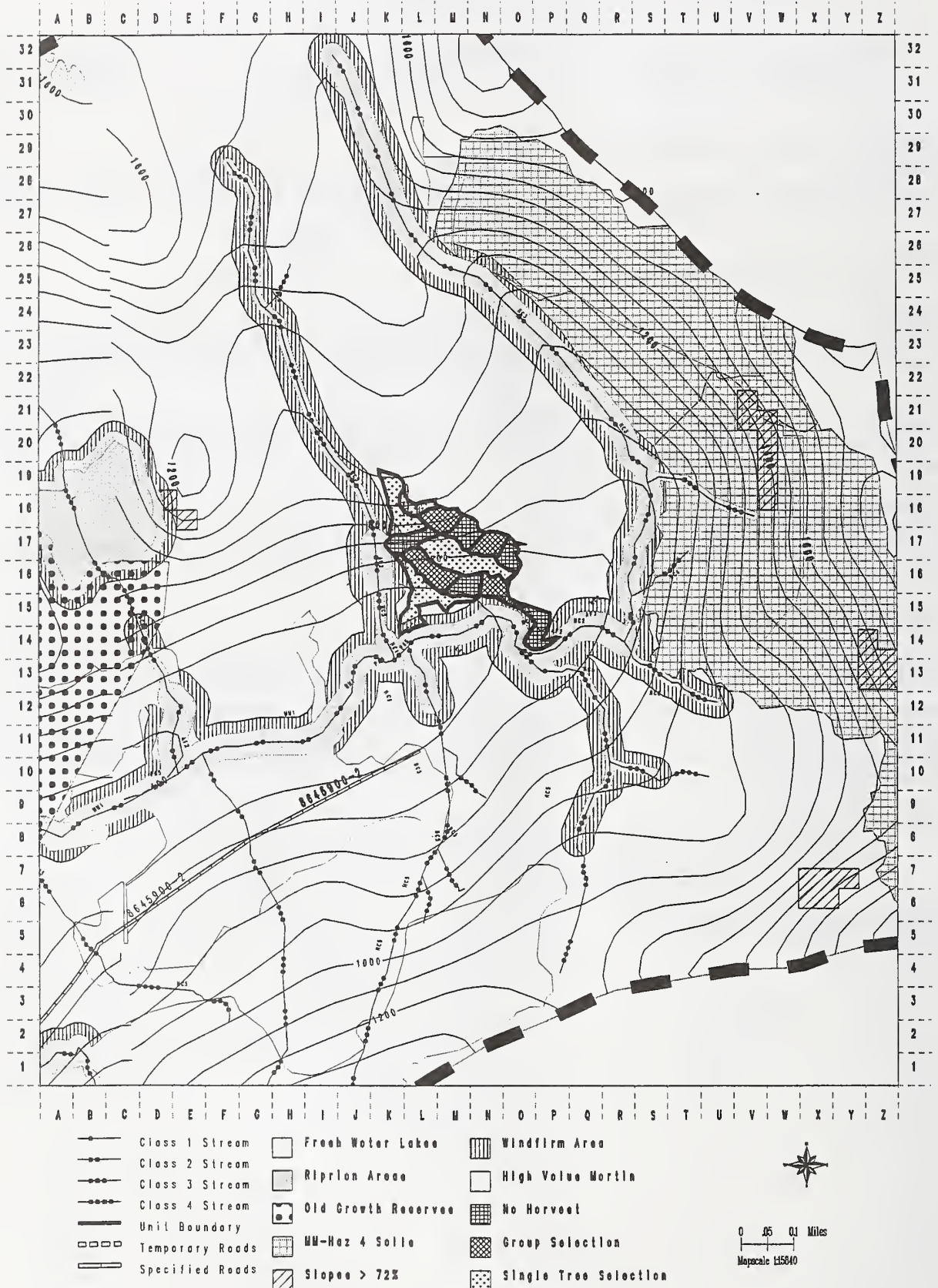
Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-9



Emerald Bay Project Area ROD Unit Card

Unit 9

Harvest Acres: 20
Aerial Photo: 1973

MBF Volume: 358
Flight #: 29

CCF Volume: 762
Photo #: 32

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

Nearly the entire unit is mapped as a Forested Wetland and Forested Wetland and Upland complex. A 1-acre non-forested poor fen (muskeg) lies in the southwest corner of the unit adjacent to the stream buffer on the west side of the unit. The muskeg is not scheduled for harvest and provides additional windfirmness adjacent to the stream buffer (BMP 12.5 and 13.16). Helicopter yarding in conjunction with single-tree selection prescription will provide adequate resource protection (BMP 13.9). (F11)

Soils

Slopes within unit range up to 60 percent gradient and no slopes over 72 percent were identified (BMP 13.5). Helicopter yarding in conjunction with single-tree selection prescription will adequately protect soil resources (BMPs 13.9, 12.5 and 13.14). (F18)

Fisheries/Hydrology

Unit is bordered by a water-quality stream to the west and a Class II stream with high-value fish habitat, wetland, and riparian area to the south (BMPs 12.5 and 12.61). This area will require a windfirm buffer that includes the entire riparian area (BMPs 12.6a and 13.16). The extent of the riparian area needs to be verified during project implementation.

Class II AF2 adjacent to west boundary: a buffer that is the greater of 140 foot or active portion of alluvial fan is required. (F1, F2)

Class II HC1 adjacent to southwest unit corner: no harvest within the greater of 100 feet or the V-notch. (F1, F2)

Class III HC5 adjacent to west unit boundary: no timber harvest within the V-notch. (F1, F2)

Class II PA5 adjacent to south boundary: greater of 100 foot or RMA buffer required. (F1, F2)

Silvicultural Prescription (Single Tree and Group Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (12 acres)

Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

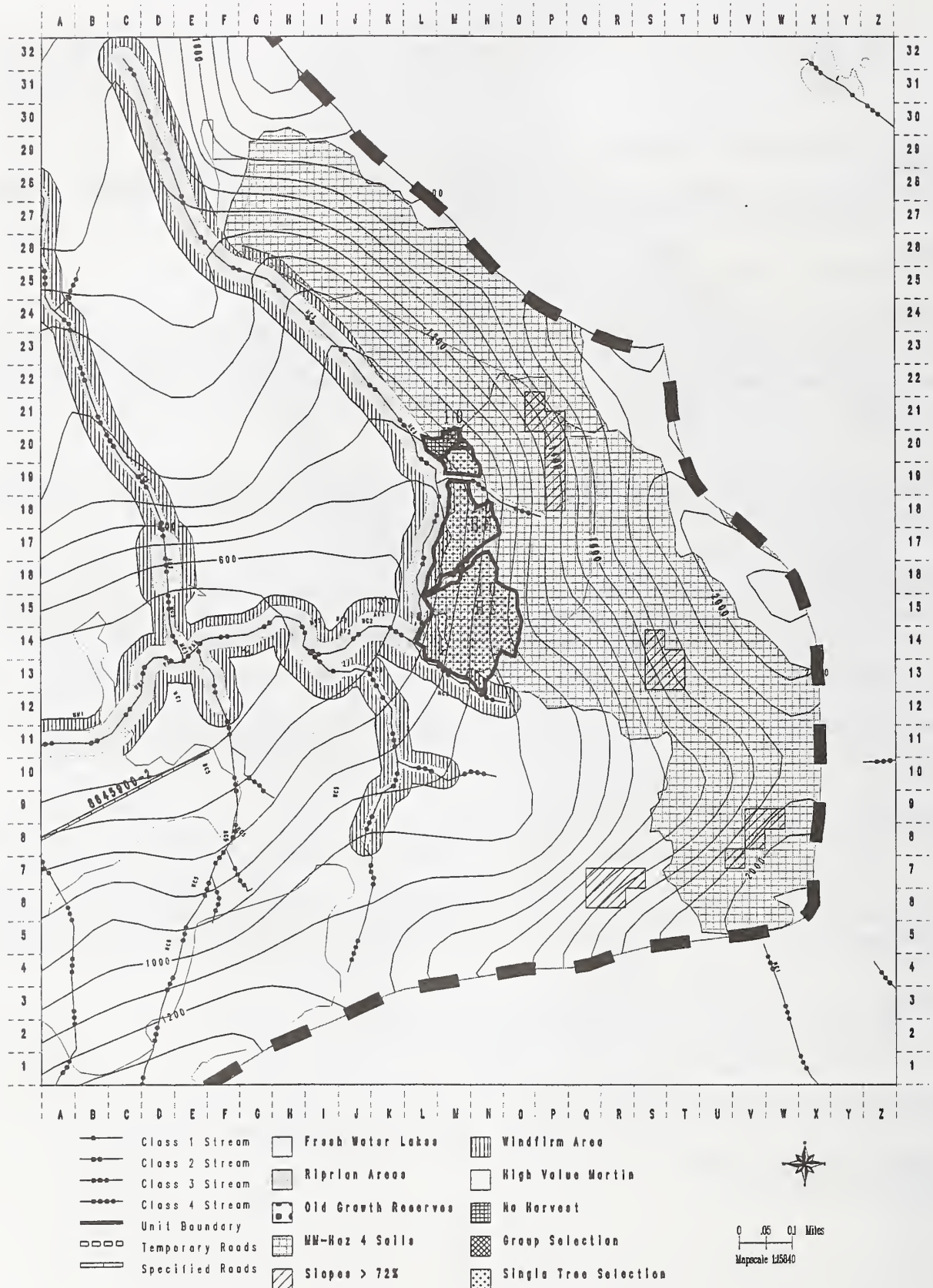
Group Selection will be applied to four areas (8 acres).

Target basal area will be removed in groups, the resulting openings not to exceed 2 acres in size.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-10



Emerald Bay Project Area ROD Unit Card

Unit 10

Harvest Acres: 33
Aerial Photo: 1973

MBF Volume: 591
Flight #: 29

CCF Volume: 1.258
Photo #: 32

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, average 3 pieces downed logs/acre (20-30"+). (W28)

An occupied red-tailed hawk nest was found in the northern portion of Unit 10c. Applicable standards and guidelines (600 foot windfirm buffer equating to approximately 29 acres) will be applied as long as the nest remains occupied. Occupancy surveys will be conducted annually.

Scenery

No impacts to visual quality are anticipated.

Wetlands

The south end of Unit 10b is mapped as Forested Wetland. The remainder of the unit is mapped as Forested Upland and Forested Wetland complex. Field verification indicates that the unit is mostly uplands. Helicopter yarding will meet resource objectives (BMP 12.5 and 13.9). (F11)

Soils

Unit 10 lies on a footslope colluvial area, and soils are mostly well drained. Small areas of slopes over 72 percent totaling about one acre (in Units 10b and 10c) were identified. These areas were also identified as having a very high landslide potential. In Unit 10c two small areas of very high landslide potential were identified and remained in the unit given that helicopter yarding along with single-tree selection prescription are planned throughout the unit. Therefore resource objectives will be met (BMP 13.9 and 13.14). (F15, F18)

Fisheries/Hydrology

The western boundary of Unit 10a, 10b, and 10c is next to the mainstem of Birch Creek.

Class II HC3 adjacent to west Unit 10a, 10b, and 10c boundary: no harvest within the greater of 100 feet or the V-notch. (F1, F2)

Class III HC5 stream between 10a and 10b. Slope break buffer required. (F1, F2)

Class III HC5 between Units 10b and 10c. Slope break buffer required. (F1, F2)

Class III HC5 south of Unit 10c. Slope break buffer required. (F1, F2)

Follow BMPs 12.6, 12.6a and 13.16.

Silvicultural Prescription (Single-tree Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (33 acres)

Use single-tree selection to remove all trees as described below:

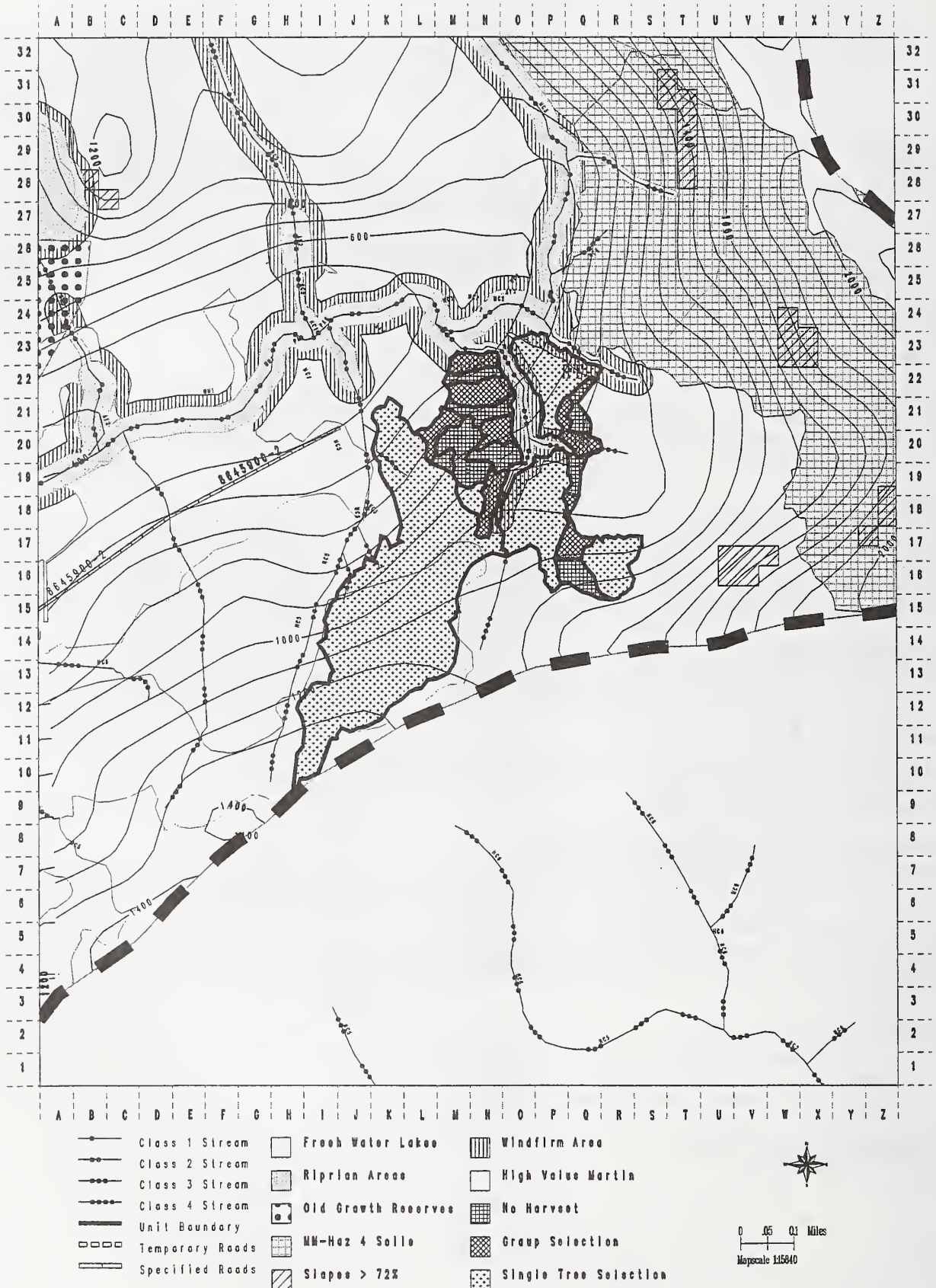
A. All trees between 16 and 24 inches in diameter.

B. All trees between 34 and 44 inches in diameter.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-11



Emerald Bay Project Area ROD Unit Card

Unit 11

Harvest Acres: 122
Aerial Photo: 1973

MBF Volume: 2.186
Flight #: 29

CCF Volume: 4.651
Photo #: 31

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

No concerns.

Soils

Slopes are predominantly less than 60 percent gradient within unit and no slopes over 72 percent were identified. The mass movement index ranges from low to high in the unit. Helicopter yarding along with single-tree selection prescription will provide adequate resource protection (BMP 13.9). Soils mapped in the west end of the unit are relatively deep and somewhat erodible. Areas disturbed during logging should be covered with slash and grass seeded to minimize erosion until natural regeneration occurs. (BMP 12.17). (F18)

Fisheries/Hydrology

Class III HC6 adjacent to northeast unit boundary: no timber harvest within the V-notch. (F1, F2)

Class III HC5 flows north through unit: no timber harvest within the V-notch. Slope break buffer required. (F1, F2)

Class IV HC5 adjacent to west unit boundary. Directional felling required. (F3)

Class III HC5 tributary to the Class III HC5 flows north through unit. Slope break buffer required. (F1, F2)

Class IV HC5 which is the upper reaches Class III HC5 flows north through unit. Directional felling required. (F3)

Class IV HC5 upper reaches of the tributary of the Class III HC5 flows north through the unit. Directional felling required. (F3)

Class IV HC5 northernmost tributary of the Class IV HC5 which follows western boundary. Directional felling where practical. (F3)

Class IV HC5 center tributary of the Class IV HC5 which follows the western boundary. Directional felling where practical. (F3)

Class IV HC5 the southern most tributary of the Class IV HC5 which follows the western boundary. Directional felling where practical. (F3)

Silvicultural Prescription (Single Tree and Group Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (108 acres)

Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

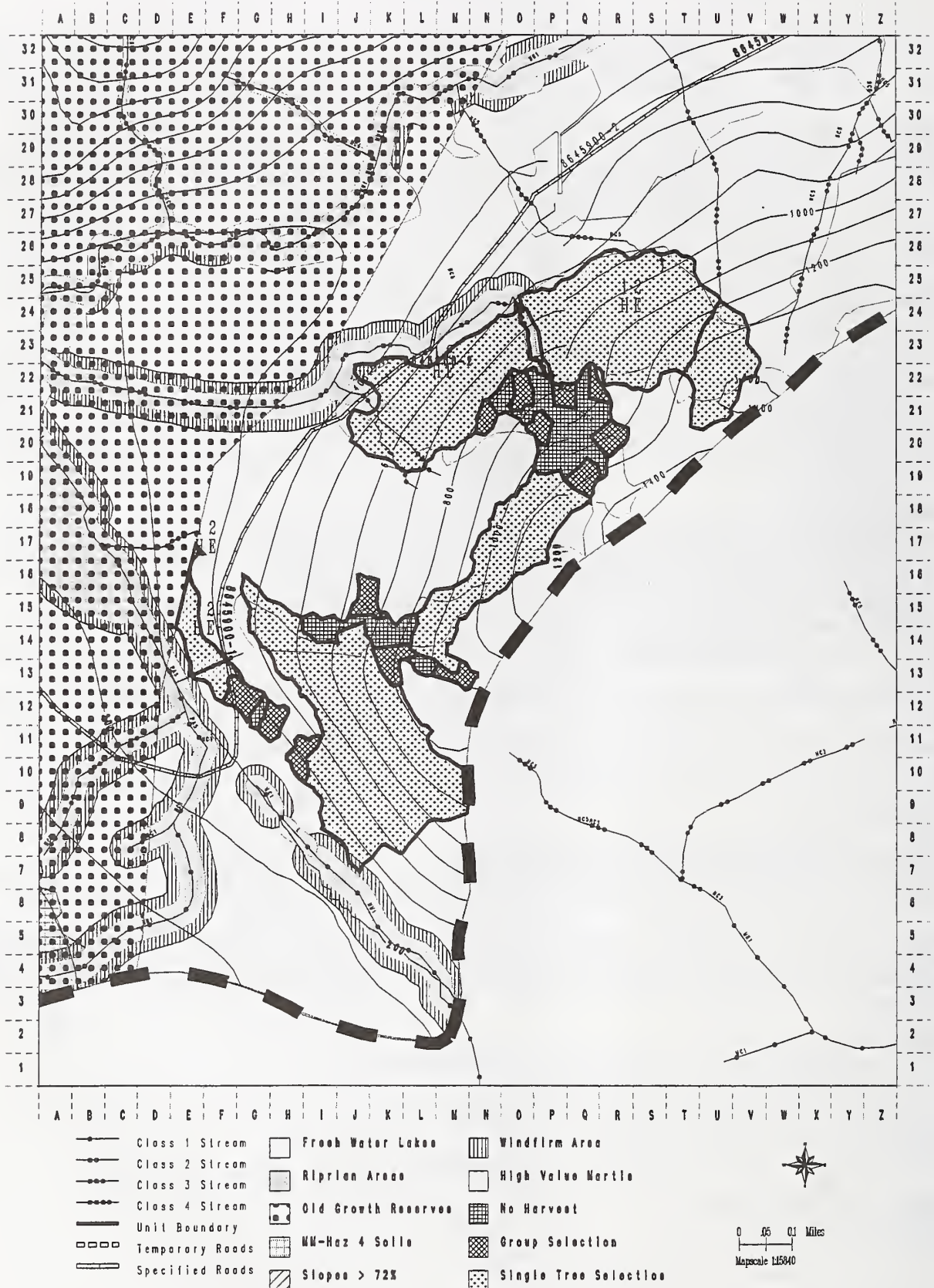
Group Selection will be applied to eight areas (14 acres).

Target basal area will be removed in groups, the resulting openings not to exceed 2 acres in size.

Logging System and Unit Design

Helicopter harvest to road.

Emerald Bay Project Area Rod Unit Card 7210-12



Emerald Bay Project Area ROD Unit Card

Unit 12

Harvest Acres: 209
Aerial Photo: 1973

MBF Volume: 3.745
Flight #: 28

CCF Volume: 7.967
Photo #: 217

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

The southern quarter of the unit lies on Forested Wetlands. Most of the unit is underlain by well-drained upland soils. Helicopter yarding in conjunction with single-tree selection prescription will provide protection to the wetlands resource (BMP 12.5 and 13.9). (F11)

Soils

Slopes within unit range from 20 percent to 70 percent gradient. No slopes over 72 percent were identified. The landslide potential ranges from low to high. Helicopter yarding in conjunction with single-tree selection prescription will mitigate landslide and erosion potential (BMP 13.9). Should any cable yarding systems be used, partial suspension requirements are to be implemented. Soils under much of the unit area are deep and somewhat erodible. Revegetation of any areas disturbed during yarding should be completed as soon as possible (BMP 12.17). (F18)

Fisheries/Hydrology

Class I MC1 Emerald Creek lower reach adjacent to west boundary: no harvest within the greater of 100 feet or the channel sideslope break required, manage a reasonable distance of one potential site tree height (~100 feet) beyond the slopebreak for windfirmness. (F1, F2)

Class I PA5 Emerald Creek middle reach adjacent to west boundary: greater of 100 foot or RMA buffer required; manage a reasonable distance of one potential site tree height (~85 feet) beyond the slopebreak for windfirmness. (F1, F2)

Class I MM1 Emerald Creek upper reach adjacent to west boundary: greater of 120 feet or RMA buffer required; manage a reasonable distance of one potential site tree height (~120 feet) beyond the slopebreak for windfirmness. (F1, F2)

Class IV MC5 tributary to Emerald Creek flows through western portion of unit. Directional felling where practical. (F3)

Class II MM1 parallel to the north boundary: 100 foot no-cut buffer required. (F1, F2)

Class II MM1 tributary to Class II MM1: 120 foot no-cut buffer required. (F1, F2)

Class III HC5 upper reach of Class II MM1 parallel to north boundary. Slope break buffer required. (F1, F2)

Class IV HC5 eastern upper reach of Class II MM1, that exists at NW tip of unit. Directional felling where practical. (F3)

Class IV HC5 western upper reach of Class II MM1, that exists at NW tip of unit. Directional felling where practical. (F3)

Class IV HC5 upper reach of Class III HC5. Slope break buffer required. (F19, F2)

Class IV HC5 exits northern tip of unit. Directional felling where practical. (F3)

Class IV HC5 bisects eastern most portion of unit. Directional felling where practical. Follow BMPs 12.6, and 13.16. (F3)

Silvicultural Prescription (Single Tree and Group Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class. Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Single-tree Selection (186 acres)

Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

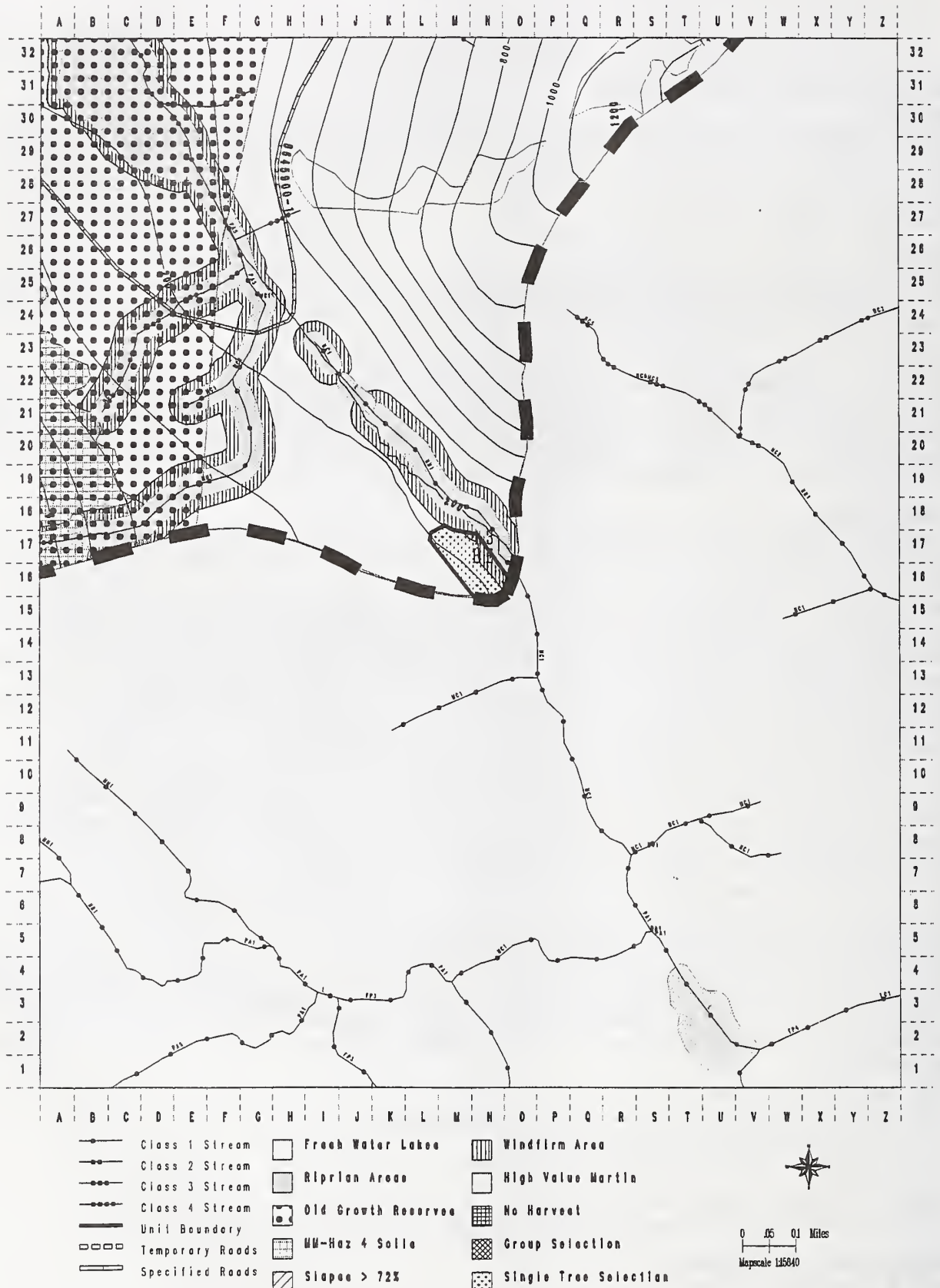
Group Selection will be applied to ten areas (23 acres).

Target basal area will be removed in groups, the resulting openings not to exceed 2 acres in size.

Logging System and Unit Design

Unit will be helicopter harvested.

Emerald Bay Project Area Rod Unit Card 7210-13



Emerald Bay Project Area ROD Unit Card

Unit 13

Harvest Acres: 7
Aerial Photo: 1973

MBF Volume: 125
Flight #: 28

CCF Volume: 267
Photo #: 218

Resource Concerns and Mitigation

Wildlife

Marten guidelines apply: maintain 10-20 percent of canopy, average 4 large trees/acre (20-30"+), average 3 snags per acre, (20-30"+), average 3 pieces downed logs/acre (20-30"+). (W28)

Scenery

No impacts to visual quality are anticipated.

Wetlands

About 3 acres of Forested Wetlands occur in unit. Helicopter yarding in conjunction with single-tree selection prescription will provide adequate protection to the wetland resources (BMP 12.5 and 13.9). (F11)

Soils

Slopes within unit are less than 30 percent gradient. Landslide potential is low.

Fisheries

Class I MC2 next to east unit boundary: no harvest within the greater of 100 feet or the channel sideslope break required. (F1, F2)

Silvicultural Prescription (Single-tree Selection)

Stands will be managed to develop and then maintain a distribution of diameter classes typical of an uneven-aged system, in which each diameter class contains approximately twice the number of trees per acre as does the next higher class.

Removal will be limited to roughly 50-60 percent of existing basal area per entry, with future entries scheduled between 50 and 100 years following initial harvest. Stand examination data was used to stratify units by species and basal area. Three stratifications were developed and a separate prescription applied to each strata. For this unit the following prescription(s) will be applied:

Use single-tree selection to remove all trees as described below:

- A. All trees between 16 and 24 inches in diameter.
- B. All trees between 34 and 44 inches in diameter.

Logging System and Unit Design

Helicopter harvest to road.

Appendix 2

Road Cards

2. 10. 1944

10. 10. 1944

Appendix 2

Road Cards

General Mitigation Measures

The general measures described in Introduction to Appendix 1, Unit Cards, apply to all units and roads in the Emerald Bay project. The source(s) of each general measure are listed after the measure in terms of individual Forest-wide Standards and Guidelines (see Chapter 4 of the Forest Plan) or BMPs (see Appendix C of the Forest Plan and Chapter 10 of FSH 2509.22, The Soil and Water Conservation Handbook). Measures with application to a particular road are listed on the individual road cards as Site-specific Design Criteria.

General Design Criteria and Elements are shown on the Road Management Objectives portion of the road cards and are defined as follows:

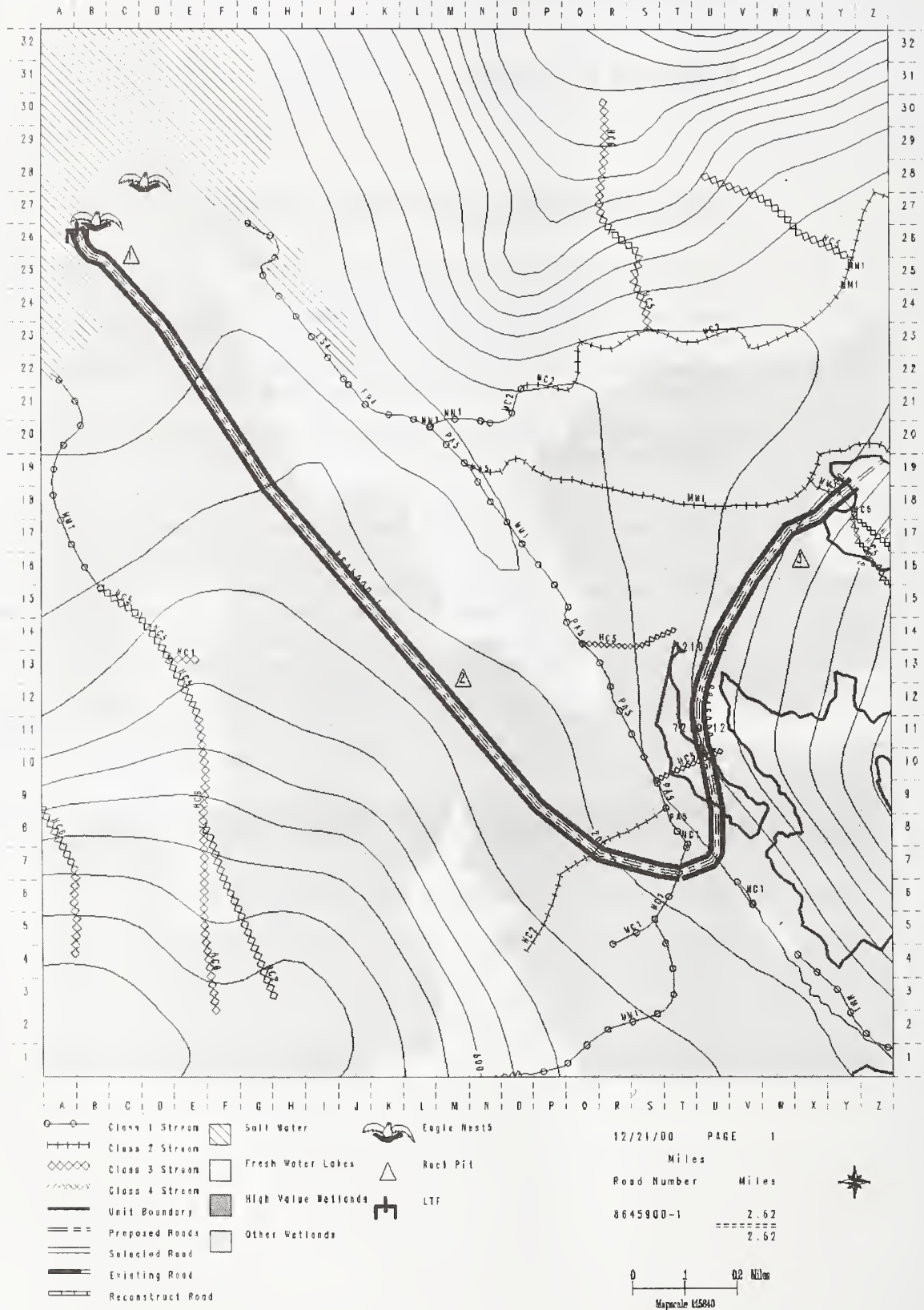
- Functional Class: Local, Collector, and Arterial classifications
- Service Life: Long or Short, Constant or Intermittent, consistent with NEPA disclosure document.
- Traffic Service Level: Traffic Service Level anticipated for the design (A, B, C, D) that takes into consideration the characteristics of the road and operating conditions.

Operational Maintenance Levels incorporate traffic service levels, as indicated in the following definitions. Applicable maintenance levels for the project area are:

- Maintenance Level 1 (Traffic Service Level D) - Roads are closed by bridge removal or organic encroachment and are monitored for resource protection. Basic custodial maintenance is performed to perpetuate the road and to facilitate future management activities.
- Maintenance Level 2 (Traffic Service Level C) - Roads are maintained for high-clearance vehicles and monitored for resource protection. Traffic would be minor, consisting of administrative uses.

AFRPR Status: Alaska Forest Resource Protection Regulations.

Emerald Bay Project Area Rod Road Card 8645900-1



Road Management Objectives

Project/EIS Emerald Bay	System Cleveland Peninsula	Land Use Designation TM/OGR
Route No. 8645900-1	Route Name Emerald	Status New construction
Begin M.P. 0.00	Length 2.74	Begin Termini 0.00
		End Termini 2.74

General Design Criteria and Elements

Functional Class L	Service Life LI	Traffic Service Level D	Surface Rock	Width 14	Critical Vehicle Log Truck	Design Vehicle Log truck	Design Speed 10
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Intended Purpose/Future Use:

Silvicultural activities

Maintenance Criteria

Operational Maintenance Level: 2

Objective Maintenance Level: 1

Maintenance Narrative:

Operation Criteria

Highway Safety Act: No

Jurisdiction: National Forest ownership

AFRPR Status: Closed

Travel Management Strategies

Encourage:	N/A
Accept:	Hikers, Bicycles
Discourage:	ATV (waterbars, pull bridges)
Prohibit:	N/A
Eliminate:	N/A

Travel Management Narrative: Remove all bridges and drainage structures upon completion of silvicultural activities. Water bar and grass seed entire roadway.

District Ranger Approval (signature) _____ **Date:** _____

Road Management Objectives

Site Specific Design Criteria

Road No. 8645900-1

Road Location: Road accesses Units 1 and 12. Road construction should be moderate to easy over most portions of the road. Road located to accommodate logging systems and still have least impact on the other resources. There are no sections where road location crosses steep slopes over 67 percent. Log Transfer Facility (LTF) is located on this road. Road constructed to be minimal impact, 14 feet wide, outsloped with no ditch except in turnpike areas. Drainage crossing shall be with log stringer bridges, culverts used on crossdrain areas only.

Wetlands: Approximately 60 percent of this section of the 8645900 road is located on wetlands. Wetlands are unavoidable while avoiding the floodplain and adjacent sloping ground (BMP 12.5 and 14.2 and CFR BMP 1). The wetlands crossed are a complex of forested wetlands, scrub-shrub evergreen wetlands, and poor fens. A rock pit will likely need to be developed on a wetland site as upland sites are not available (BMP 14.2 and CFR BMP 4 and 5). Few cross drains will be necessary on the first mile of road as it is located on a topographic rise (BMP 14.2). The road is planned for closure following harvest by means of removing all drainage structures (BMP 14.22 and CFR BMPs 2 and 7). Closure should be adequate to discourage ATVs from crossing streams and wetlands. This road meets the requirements for the silvicultural exemption from the 404 permitting process.

Road location was completed to avoid wetlands, although wetlands were unavoidable on approximately 60 percent of the entire length of the proposed road due to safety considerations, engineering design constraints and considerations for other resources.

Erosion Control: An erosion control plan for construction and maintenance will be developed by the contractor and approved by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMP 12.17 and 14.8).

Rock Pits: As shown on the map, no major concerns. Timing will be required on all pit and road right-of-way blasting within ½ mile of known eagle nests.

Resource Information (If applicable):

Timber/Logging Systems: Low-impact road design to shorten helicopter yarding distances.

Soils/Water: Road crosses wetlands on gentle slopes for approximately 60 percent of its length (BMP 14.7). Apply BMPs 12.5 and 14.2 and CFR BMPs 1, 2, 5, 6, 7, and 14. Keep clearing widths narrow outside of harvest units (CFR BMP 6). Use BMP 14.12 to control excavation of sidecast material and overburden from the rock pit.

Silviculture: No impacts to silvicultural prescriptions are anticipated.

Lands/Minerals/Geology/Karst: No impacts are anticipated.

Wildlife: Road crosses medium Old-growth Reserve, estuary buffer and eagle nest buffer.

Visual/Recreation: No impacts to visual quality are anticipated.

Cultural: If any cultural resource sites are encountered, activities are to stop in the vicinity of the find and notify the archaeologist.

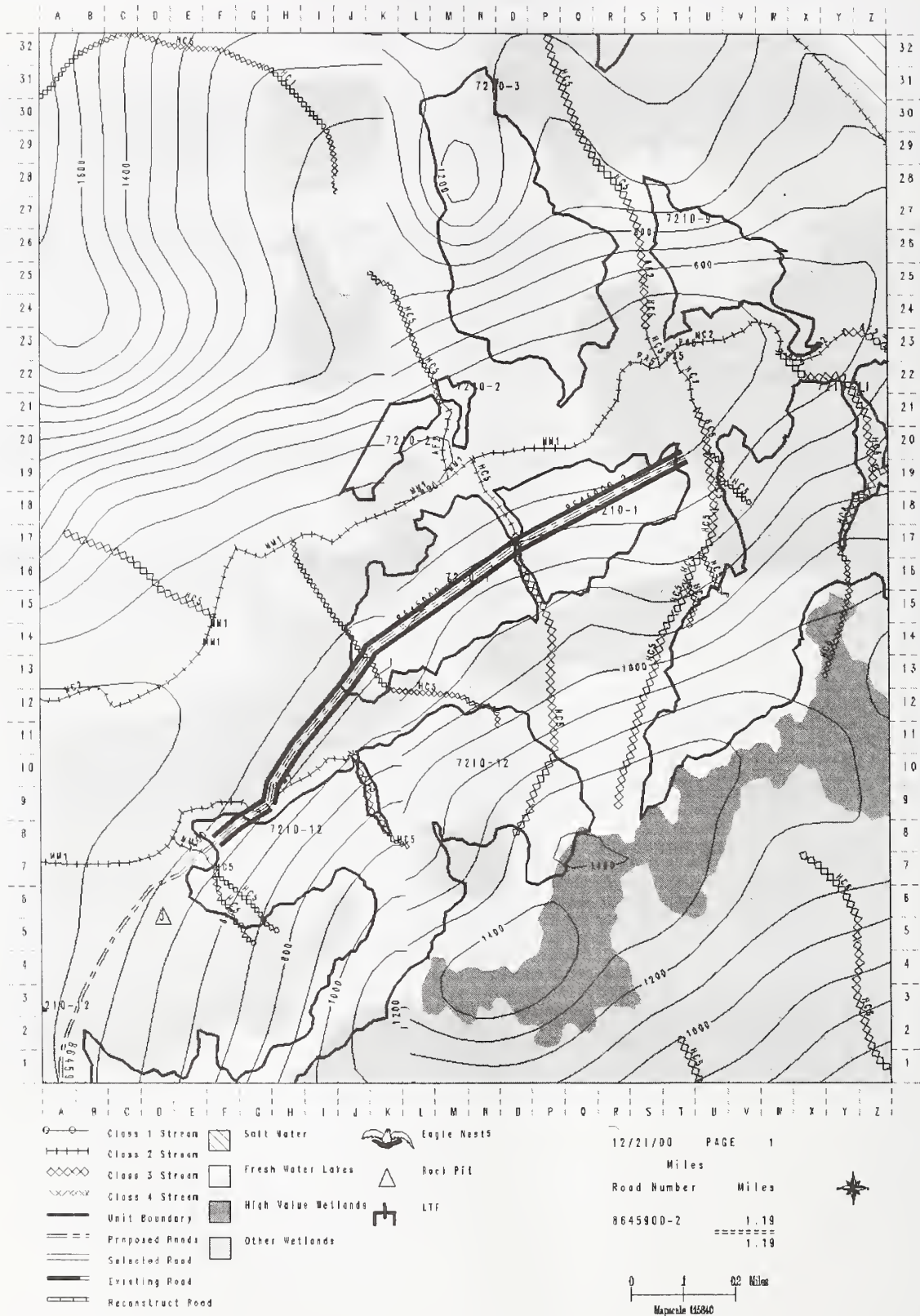
Road Management Objectives

Stream Crossings

Road No. 8645900-1

A.) M.P. 1.47 Gradient: 12% Narrative:	AHMU Class II Structure: log stringer	Channel Type: HC2 Passage Req'd.: yes	BF Width: 0.8 m BF Depth: 20 cm Substrate: bdrk Timing Dates: none
B.) M.P. 1.62 Gradient: 10% Narrative:	AHMU Class I Structure: log stringer	Channel Type: MC1 Passage Req'd.: yes	BF Width: 0.5 m BF Depth: 15 cm Substrate: cobbles Timing Dates: June 15 to August 7
C.) M.P. 1.70 Gradient: 12% Narrative:	AHMU Class I Structure: log stringer	Channel Type: MC1 Passage Req'd.: yes	BF Width: 0.5 m BF Depth: 15 cm Substrate: bdrk Timing Dates: none
D.) M.P. 1.70 Gradient: 19% Narrative:	AHMU Class IV Structure: log stringer	Channel Type: HC3 Passage Req'd.: no	BF Width: 0.3 m BF Depth: 5 cm Substrate: bdrk Timing Dates: none
E.) M.P. 2.45 Gradient: 6-8% Narrative:	AHMU Class II Structure: log stringer	Channel Type: MC1 Passage Req'd.: yes	BF Width: 0.5 m BF Depth: 15 cm Substrate: bdrk Timing Dates: none

Emerald Bay Project Area Rod Road Card 8645900-2



Road Management Objectives

Project/EIS Emerald Bay	System Cleveland Peninsula	Land Use Designation TM	
Route No. 8645900-2	Route Name Emerald	Status New construction	
Begin M.P. 0.00	Length 1.01	Begin Termini 2.74	End Termini 3.75

General Design Criteria and Elements

Functional Class L	Service Life LI	Traffic Service Level D	Surface Rock	Width 14	Critical Vehicle Log Truck	Design Vehicle Log truck	Design Speed 10
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Intended Purpose/Future Use:

Silvicultural activities

Maintenance Criteria

Operational Maintenance Level: 2

Objective Maintenance Level: 1

Maintenance Narrative:

Operation Criteria

Highway Safety Act: No

Jurisdiction: National Forest ownership

AFRPR Status: Closed

Travel Management Strategies

Encourage:	N/A
Accept:	Hikers, Bicycles
Discourage:	ATV
Prohibit:	N/A
Eliminate:	N/A

Travel Management Narrative: Remove all bridges and drainage structures upon completion of silvicultural activities. Water bar and grass seed entire roadway.

District Ranger Approval (signature) _____

Date: _____

Road Management Objectives

Site Specific Design Criteria

Road No. 8645900-2

Road Location: Road accesses Units 1 and 12. Road construction should be moderate to easy over most portions of the road. Road located to accommodate logging systems and still have least impact on the other resources. There are no sections where road location crosses steep slopes over 67 percent. Road to be constructed as a low-impact road. Road constructed to be minimal impact, 14 feet wide, no ditch and outsloped except in turnpike sections. Drainage crossings will be with log stringer structures, corrugated metal pipes (cmgs) used for cross drains.

Wetlands: Road crosses approximately 0.26 miles of forested wetland and 0.64 miles of forested wetland and nonforested non-wetland complex. The wetlands are unavoidable while accessing harvest units (BMP 12.5 and CFR BMPs 1 and 2). Limit excavation of sidecast material to the road corridor (BMP 14.12). The road does not cross Birch Creek. Rock pits need to be located outside wetland areas (BMP 12.5 and CFR BMP 8). Minimize clearing widths in wetlands outside harvest units (CFR BMP 5 and 6). Road is planned for closure following harvest by means of removing all drainage structures (BMP 14.22). This road meets the silvicultural exemption from the 404 permitting process.

Road location was completed to avoid wetlands, although wetlands were unavoidable (m.p. 0.40 to 0.43 and 1.40 to 1.49) due to safety considerations, engineering design constraints and considerations for other resources.

Erosion Control: An erosion control plan for construction and maintenance will be developed by the contractor and approved by the Contracting Officer (BMP 14.5). All areas of organic or mineral soil exposed during construction shall be grass seeded and fertilized (BMP 12.17, 14.8).

Rock Pits: As shown on the map, no major concerns.

Resource Information (If applicable):

Timber/Logging Systems: Road will reduce helicopter yarding distances.

Soils/Water: Road traverses relatively stable slopes (BMP 14.2 and 14.7). Remove drainage structures following harvest (BMP 14.17 and 14.22). Close road in such a way as to discourage ATV use in and adjacent to streams and wetlands (BMP 14.22).

Silviculture: No impacts to silvicultural prescriptions are anticipated.

Lands/Minerals/Geology/Karst: No impacts are anticipated.

Wildlife: Road design and closure methods intended to mitigate impacts to wildlife.

Visual/Recreation: No impacts to visual quality are anticipated.

Cultural: If any cultural resource sites are encountered, stop activities in the vicinity of the find and notify the archaeologist.

Road Management Objectives

Stream Crossings

Road No. 8645900-2

A.) M.P. 0.25 AHMU Class II Channel Type: MM1 BF Width: 0.4 m BF Depth: 10 cm Substrate: bdrk
Gradient: 22% Structure: log stringer Passage Req'd.: yes Timing Dates: none
Narrative:

B.) M.P. 0.47 AHMU Class IV Channel Type: HC5 BF Width: 0.4 m BF Depth: 10 cm Substrate: bdrk
Gradient: 12% Structure: log stringer Passage Req'd.: no Timing Dates: none
Narrative:

C.) M.P. 0.75 AHMU Class IV Channel Type: HC5 BF Width: 0.4 m BF Depth: 0.3 m Substrate: cobbles
Gradient: 6-8% Structure: log stringer Passage Req'd.: yes Timing Dates: none
Narrative:



Appendix 3

Roads Analysis

В. И. Бородин
С. И. Бородин

Appendix 3

VCU-7210 Area-Scale Roads Analysis Determination

Emerald Bay Project Area

Introduction

The Forest Service Transportation Policy (FSM 7700, January 12, 2001) establishes requirements for roads analysis when planning to construct, reconstruct or close roads on National Forest System lands. The Tongass National Forest has prepared the Emerald Bay Environmental Impact Statement to be consistent with the Forest Service Transportation; Policy (Roads Rule). Among other direction, the Roads Rule requires that an area-specific roads analysis be completed and a determination of need for amendment or revision of the Forest Plan be made if any roads are to be constructed or reconstructed in inventoried roadless or contiguous unroaded areas, until a forest-wide roads analysis has been completed (FSM 7712.16(c)). This road analysis process is located in the Emerald Bay Project Area planning record at the Ketchikan-Misty Fjords Ranger District. A separate interim directive (7710-2001-1) extends the deadlines for requiring roads analysis for all road management decisions to January 12, 2002 (FSM 7712.15), but does not apply to FSM 7712.16.

The following is a summary of the roads analysis information in the Emerald Bay Environmental Impact Statement and project planning record.

Area and Road System Description

Value Comparison Unit (VCU) 7210 is a logical portion of the Forest to analyze the transportation system needs. It is located in the southern portion of the Cleveland Peninsula comprising 7845 acres of the northwest portion of the 190,000 acre Inventoried Roadless Area 528. Currently there are no roads within the VCU. Topography on the northern boundary of VCU 7210 precludes reasonable road connection between Roadless Area 528 and areas to the north while a series of muskegs, non-commercial forest and old growth reserve make it unlikely that a road connection would occur between it and areas to the south (See Attached Map).

The Emerald Bay timber sale planning area encompasses all of VCU 7210. It has had intensive road related analysis as part of the Emerald Bay EIS, proposing 3.8 miles of low impact road construction, all of which will be put into storage following sale activities.

The combination of the logical portion of the Tongass National Forest represented by the 7845 acre VCU 7210, and the intensive area scale road related analyses completed as part of the Emerald Bay EIS fit the intent of the Roads Policy to be able to determine if the Forest Plan land allocations are consistent with the new Policy.

Land Use Designations (LUDs)

The Tongass National Forest Land and Resource Management Plan was revised in 1997 and a Record of Decision (ROD) was issued on May 23, 1997. In response to appeals on the 1997 ROD, a new ROD was issued by the Under Secretary of Agriculture in 1999. In *AFA v. USDA*, the US District Court, District of Alaska, vacated the 1999 ROD and upheld the 1997 ROD. For the Emerald Bay project area, this means that the actual land use designation (LUD) for the project area did not change, however, approximately 37,000 acres within this 190,000 acre Inventoried Roadless Area (#528) changed from remote recreation (1999 ROD) to timber production (1997 ROD).

Approximately 2,586 acres of VCU 7210 are designated to the Timber Production LUD, the remaining 5,289 acres are designated as Old Growth Habitat. There are no other land allocations within the VCU. There is no private land located within VCU 7210.

The small community of Meyers Chuck is located south of VCU 7210. All community access is by boat or floatplane. No roads that would affect National Forest System lands are anticipated in the vicinity of Meyers Chuck because of the small population of the area.

Social and Environmental Issues

The Emerald Bay project area is on the northwest coast of the southern portion of the Cleveland Peninsula. It is accessible by boat or small plane from Ketchikan and Wrangell. However, while somewhat accessible to many potential users, survey information shows that the principal users are from the Meyers Chuck community with potential additional use coming from Wrangell, Ketchikan, and Thorne Bay (Chapter 3-Socio-economics Emerald Bay FEIS).

Recreation use

All recreation occurring in the project area is land based and only accessible by boat or floatplane. The only logical saltwater-based access point is at the Emerald Creek estuary. At low tide there is a small sloping gravel beach to the left of the estuary. It appears this cove may offer suitable anchorage except in strong northerly winds. There are no developed recreation sites at Emerald Bay or nearby. Although there are no records of recreation use within the project area, recreational use may occur along the shorelines of Emerald Bay and Emerald Creek in the form of fishing, swimming, and boating. Upland recreation may include hunting and hiking in the alpine areas south and west of Emerald Bay. There have been reports of a historically significant heritage trail connecting Emerald Bay estuary to the Spacious Bay shoreline near the Wasta Creek outlet, a distance of nearly 7 miles. The road proposed as part of the Emerald Bay project is not anticipated to add to or detract from existing use of the area.

Subsistence use

Subsistence use within the VCU is analyzed fully in Chapter 3 of the FEIS. Meyers Chuck is the primary subsistence user, with total hunter demand being small. Based on the preceding analysis in the FEIS, the Emerald Bay project would not pose a significant possibility of a significant restriction on any subsistence resource within the project area, from past, current and reasonably foreseeable future actions

Off-highway vehicles (OHVs)

There are no roads or designated OHV trails within the VCU. Of major concern to other agency personnel is the opportunity for OHV access once a road is built into the area. The Emerald Bay project is the only project scheduled within the VCU. The 3.8 miles of low impact road proposed in the selected alternative are designed to be put in storage upon completion of timber sale activities. Additional mitigations which have proved successful in deterring OHV use are described in the Project Road Cards.

Fish Passage

Recently, there has been a concern that not all of the existing stream crossing structures on other parts of the Tongass provide adequate fish passage. All crossings required for the Emerald Bay Project will be accomplished using log stringer bridges that will be removed upon completion of timber sale activities.

Wildlife

Road access can directly affect wildlife populations through hunting pressure, poaching, road kill, and denning, nesting and rearing disturbance. All roads will be put in storage upon completion of the project.

Erosion and Road Failures

The low impact road construction proposed for the Emerald Bay project is described in the road cards as moderate to easy, with no sections crossing slopes over 67%. Since the road is designed to be built to lower impact standards, and put in storage following timber sale activities, no problems with erosion or failure are anticipated.

Interagency and Public Coordination in Support of the Road Analysis

The Emerald Bay Project planning process began in 1997. Several Project Update letters were distributed and two public meetings were held. Coordination with State and Federal Agencies and local and tribal governments also occurred during this time. Public and Interagency Involvement is discussed in detail in Chapter 1 of the Emerald Bay FEIS. The low-impact road design and subsequent closure methods are a result of this involvement.

Information Sources

In addition to the analyses associated with the revision of the Forest Plan is the information associated with the Emerald Bay EIS. The most recent information associated with the Emerald Bay planning effort is located in the project planning record. Currently there are no roads within the project area. Road related analyses for this project area have determined where roads are appropriate and whether the roads proposed are needed for short or long term management of the project area. These are documented as Road Management Objectives and will be stored in the Forest Roads Atlas via GIS and INFRA as appropriate. The Emerald Bay Record of Decision will identify the road system needed for that project, projected to be 3.8 miles in the preferred alternative, all of which will be put in storage following completion of timber sale activities.

Minimum Road System

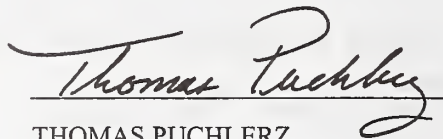
The new Forest Service Transportation Policy (FSM 7700, January 12, 2001) requires a determination of the minimum road system needed to meet resource and other management objectives relevant to the Forest Plan. Other than the roads proposed for the Emerald Bay EIS there appears to be no need for additional roads on National Forest System lands for this logical portion of the Tongass National Forest

Forest Plan Consistency Determination

The amount of road system necessary to implement sound multiple use management of National Forest System lands is based on the Forest Plan (1997, as amended) and identified community needs. The activities proposed for road construction and maintenance in the Emerald Bay Project respond to the Forest Plan goals and objectives to protect water, soil, fish, and other resources. The amount of road construction proposed (3.8 miles) when combined with other proposed roads Forest-wide is well within the Forest Plan objectives. Roads are intended to be closed based on resource concerns. Conflicts with roads and land use designations have been resolved. All new road location and design will meet or exceed the

Forest Plan standards and guidelines (Forest Plan, page 4-104 to 4-110). Stream crossing structures have been analyzed for safety and resource concerns.

Based on the above information, especially in relation to the Forest-wide transportation system needs and the land use designations in the current Forest Plan, I have determined that no revisions or amendments to the Forest Plan are needed to be consistent with the Forest Service Transportation Policy (FSM 7700, January 12, 2001).



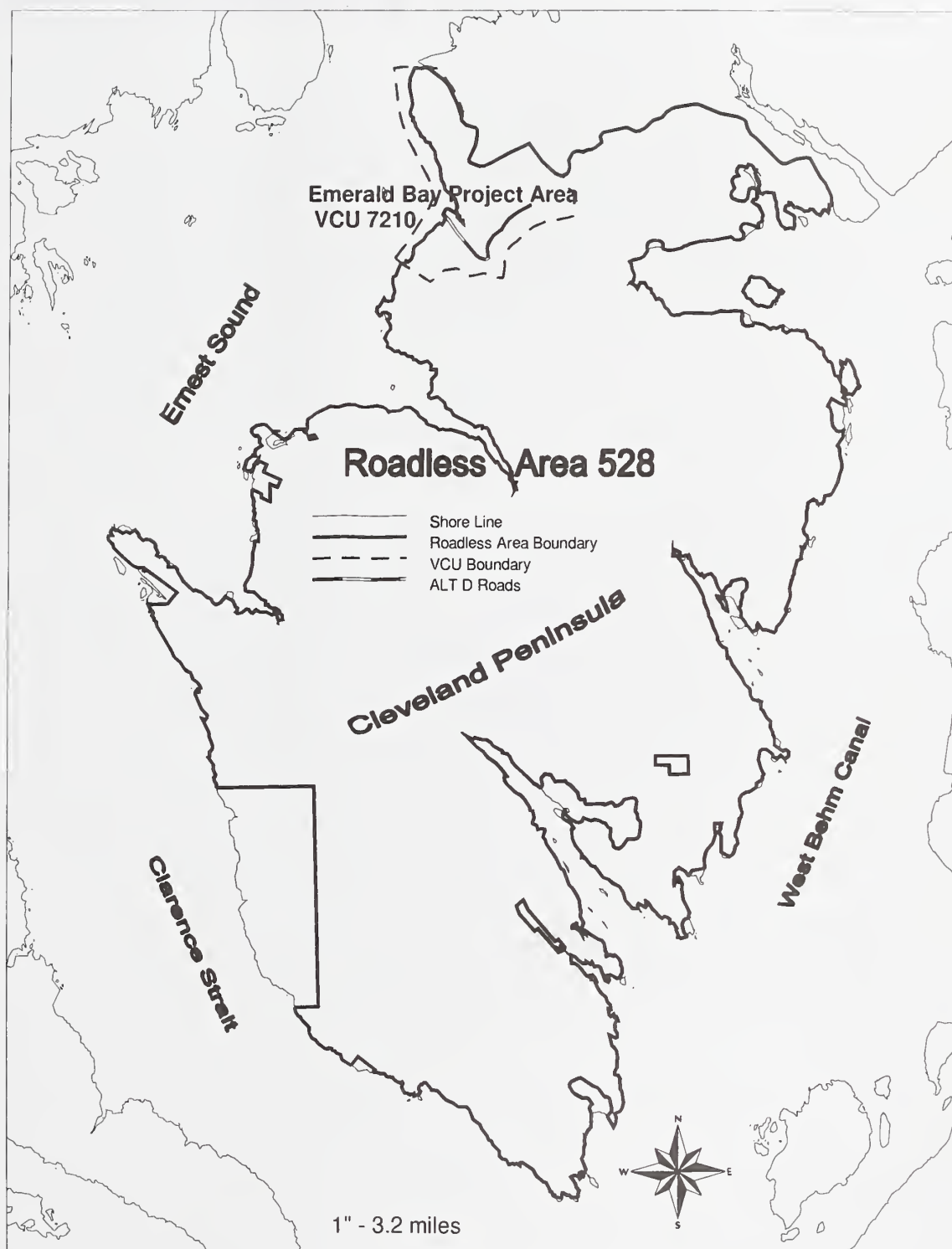
THOMAS PUCHLERZ

Forest Supervisor

9-13-01

Date

Figure A3-1
VCU 7210 Roads Analysis Map



Source: GIS, Pete Klein, 2001



Summary

Summary

Summary

Proposed Action

The 7,845-acre Emerald Bay project area is located approximately 40 air miles north of Ketchikan, Alaska. It is located on the Cleveland Peninsula in the Emerald Creek and Birch Creek watersheds. Access to the area is by small plane originating in Ketchikan or Wrangell or by boat through Ernest Sound. Previous efforts to schedule timber harvest on the Cleveland Peninsula have met with varying degrees of local and even national opposition, issues that were also considered in this decision.

The project area includes value comparison unit (VCU) 7210. Value comparison units are defined in the Introduction to Chapter 3. For analysis purposes, the project area boundaries are considered to be the same as the VCU boundaries. The VCU boundaries generally follow major watershed divides; however, the southern tip of the project area crosses slightly into the Wasta Creek drainage, which drains into Spacious Bay.

The Forest Service proposes to harvest approximately 11 MMBF of timber from approximately 625 acres of National Forest System land through one timber sale beginning in 2001. This would require approximately 3.8 miles of low-impact road construction. Logs would be transported to a new log transfer facility in Emerald Bay. Timber would be sold from this project in one sale.

The proposal includes timber harvesting on selected suitable timber lands for the production of sawtimber and other wood products, to help meet market demands for timber and provide resource production opportunities and employment for local communities. Harvest methods other than traditional clearcutting are proposed; harvest is expected to improve timber growth and contribute toward a balance of age classes. The project proposes road building through a medium Old-growth Reserve.

Purpose and Need

The Emerald Bay project is proposed at this time to respond to goals and objectives of the Forest Plan, and to help move the project area toward desired future conditions described in that Plan. The Purpose and Need for this project has always had two distinct components. The first part is to implement Forest Plan direction for the timber production land use designation as follows:

- Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner.
- Seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle.
- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.
- Support a wide range of natural resource employment opportunities within Southeast Alaska's communities.

The second part of the Purpose and Need is specific to the Emerald Bay project and departs from traditional timber sale harvest methods that have been the usual approach in Southeast Alaska. These project objectives are:

1. Provide insight and information into possible approaches to timber harvest with minimal road building, using uneven-aged management techniques to maintain a diverse range of structures and a variety of wildlife habitats.
2. Provide an opportunity to gather information on non-traditional log removal techniques such as uneven-aged helicopter harvesting and low-impact roading.
3. Attempt to minimize disturbance in adjoining Old-growth LUDs and minimize fragmentation of roadless areas while still meeting the goals, objectives and desired condition for the Timber Production LUD.
4. Provide local employment opportunities in the wood products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources.

As the project evolved through the steps in the NEPA process, several policy changes were made and other trial projects implemented that changed the focus of the Emerald Bay proposal, although encompassed by the two components of the Purpose and Need described above. Several things have occurred that have changed the intent, but not the need for this timber sale project. In April of 1999, Under Secretary of Agriculture, James R. Lyons, issued a new Record of Decision to the 1997 Tongass National Forest Land and Resource Management Plan that removed of most of the Cleveland Peninsula from Timber Production land use designations.

Additional analysis performed subsequent to this decision showed Alternative C to be economically infeasible. The original (mid-market) appraisal of Alternative C, although negative, was not nearly as negative as the more recent analysis shows it to be. To assure the consideration of all reasonable alternatives in light of the best economic information, an additional, partially roaded alternative (Alternative D), with a continued emphasis on uneven-aged management was developed.

On January 12, 2001, the Roadless Area Conservation Rule was finalized. This rule, scheduled for implementation on May 12, 2001 would prohibit timber harvest and road building in Inventoried Roadless Areas. The Forest Service is reevaluating its Roadless Area Conservation Rule (Roadless Rule) and is currently enjoined from implementing all aspects of the Roadless Rule by the US District Court, District of Idaho. The Emerald Bay Draft EIS was issued prior to the deadline in the Roadless Rule, so this project could move forward regardless of the Roadless Rule status.

In *Sierra Club v. Lyons* (J00-0009 (CV)), the US District Court, District of Alaska enjoined the Tongass National Forest from taking any action to change the wilderness character of any eligible roadless area until a supplemental environmental impact statement evaluating wilderness recommendations for roadless areas has been prepared. On May 23, 2001, the Judge temporarily lifted this injunction pending a hearing and further order from the Court.

In *AFA v. USDA*, the US District Court, District of Alaska vacated the 1999 Record of Decision for the Tongass Forest Plan and upheld the 1997 Record of Decision. The Emerald Bay project is consistent with the 1997 Record of Decision for the Revised Tongass Land Management Plan.

In June 2001, the Forest Service Chief reserved authority for approval of projects in roadless areas to himself. In July 2001, the chief delegated to the Regional Forester authority to sign Records of Decision for projects in Inventoried Roadless Areas with Forest Plan Revisions that analyzed roadless areas. The Regional Forester has since delegated this authority to the Forest Supervisor.

The Forest Service Transportation Policy requires that an area-specific roads analysis be completed and a determination of need for amendment or revision of the Forest Plan be made if any roads are to be constructed or reconstructed in inventoried roadless or contiguous unroaded areas, until a Forest-wide roads analysis has been completed (FSM 7712.16(c)). This analysis has been made for the Emerald Bay project and can be found in the project planning record. The determination can be found in Appendix 3 of the Record of Decision.

A separate interim directive (7710-2001-1) extends the deadlines for requiring roads analysis for all road management decisions to January 12, 2002 (FSM 7712.15), but does not apply to FSM 7712.16.

The rest of the objectives can still be met to varying degrees, as discussed in the Comparison of Alternatives section in Chapter 2 of the Final EIS.

Appendix A of this EIS provides a more detailed rationale for why the Emerald Bay project area was selected for analysis at this time. Further clarification can be found in the next section regarding this project's relationship to the Forest Plan.

Two Forest Plan land use designations are within the project area. The applicable goals of the two, Old-growth Reserve and Timber Production, are listed below:

- Seek to reduce clearcutting when other methods will meet land management objectives.
- Improve timber growth and productivity on commercial forest lands.
- Plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production.
- Provide old-growth forest habitats, in combination with other LUDs, to maintain viable populations of... fish and wildlife species... that may be closely associated with old-growth forests.
- Contribute to the habitat capability of fish and wildlife resources to support sustainable human subsistence and recreational uses.

Issues Associated with the Proposed Action

Issues for the Emerald Bay project were identified through public and internal scoping. The following two issues were determined to be key and within the scope of the project decision. These issues are addressed through the Proposed Action and alternatives.

Timber Economics and Supply

This issue encompasses public concern over:

- the amount of timber available and proposed for harvest,
- the methods of timber harvest,
- whether or not timber harvest should be continued,
- balancing timber production with other Forest uses,
- how the project contributes to the long-term timber supply, and
- cost-effective timber harvest.

Roadless and Road Construction

This issue is construction of roads into areas available for timber management but currently unroaded, and management of those roads following timber harvest. Of particular concern is road building on the Cleveland Peninsula in general, as well as roading through a medium Old-growth Reserve. As the project analysis progressed, many people expressed the desire to see the Cleveland Peninsula remain unroaded while others objected to both roading and timber harvest.

Land Use Designations

All action alternatives incorporate and apply Forest Plan Standards and Guidelines for riparian areas, the beach and estuary fringe, goshawk, and marten. No timber harvest would occur in riparian or beach and estuary fringe habitats in any alternative; all harvest units will be partial cut, using uneven-aged systems.

Comparison of Alternatives

This section compares outputs, objectives and effects of the alternatives in terms of the significant issues for the Emerald Bay project. The discussions of effects are summarized from Chapter 3; for a full understanding of the effects, Chapter 3 should also be read. The table below provides an overview comparison of information from the alternative descriptions. This information will be used in the discussions which follow.

Table S-1
Comparison of Action Alternatives—Outputs, Objectives and Effects

Category	Unit of Measure	Alt A	Alt B	Alt C	Alt D
Harvest Method					
Clearcut	acres	0	421	0	0
Individual Tree	acres	0	178	569	569
Group Selection	acres	0	0	56	56
Harvest Volume ¹	MMBF ²	0	16.3	10.8	11.2
Harvest Units					
Number of Units	#	0	8	10	10
Average Unit Size	acres	0	75	63	63
Harvest System ¹					
Long Span Cable	acres	0	117	0	0
Short Span Cable	acres	0	269	0	0
Helicopter	acres	0	185	625	625
Shovel	acres	0	28	0	0
Roads					
New Construction	miles	0	6.2	0	3.8
LTF Construction	#	0	1	0	1
Economics					
Average Harvest Cost	\$/MBF	0	\$243	\$504	\$319
Net Stumpage Value ³	\$/MBF	0	\$95	- \$170	\$31
Employment	jobs/year	0	87	57	59

¹excluding additional right-of-way volume

²MMBF = million board feet

³at current market prices

Source: C. Grundy

Alternative A proposes no timber harvest, and thus offers no opportunity for timber-related employment or personal income. The action alternatives would result in timber-related employment opportunities in direct proportion to their total harvest volumes. Alternative B offers the most timber volume (16.3 MMBF) and generates the highest potential number of jobs (87). These amounts are somewhat more than Alternative C (10.8 MMBF and 57 jobs) and D (11.2 MMBF and 59 jobs).

Alternative B, with 6.2 miles of road construction and conventional harvest, has the lowest average overall cost (\$243 per MBF). Alternative C, with no new roads and 100 percent uneven-aged management prescriptions, has the highest average cost, which at \$504 per MBF is substantially higher than the other action alternatives. These costs are largely related to long-distance helicopter yarding. Alternative D proposes 3.8 miles of low-impact road construction

and maintains the uneven-aged prescriptions of Alternative C. Costs fall between those of Alternatives B and C. Alternative A has no new road construction or harvest.

Alternatives B and D both construct one LTF. Alternative B constructs 6.2 miles of new road while Alternative D constructs 3.8 miles of low-impact road. Both alternatives propose 2.2 miles of road through a medium OGR. All roads would be closed following completion of silvicultural activities. Alternative C does not propose any roading.



Chapter 1

Purpose and Need

Chapter 1

Purpose and Need

Introduction

In compliance with the National Environmental Policy Act (NEPA) and other relevant State and Federal laws and regulations, the Forest Service has prepared this Environmental Impact Statement on the potential effects of timber harvest in the Emerald Bay project area (see Figure 1-1). The project area is located on the Cleveland Peninsula, and is within the Ketchikan–Misty Fiords Ranger District, Tongass National Forest, Alaska. Previous efforts to schedule timber harvest on the Cleveland Peninsula have met with varying degrees of local and even national opposition, issues that were also considered in this decision.

This EIS discloses the direct, indirect, and cumulative environmental impacts and any irreversible or irretrievable commitment of resources that would result from the Proposed Action and alternatives.

This EIS is prepared according to the format established by the Council on Environmental Quality (CEQ) regulations for implementing the NEPA (40 CFR 1500-1508). Chapter 1, in addition to explaining the Purpose and Need for the Proposed Action, discusses how the Emerald Bay project relates to the Tongass Land and Resource Management Plan (Forest Plan), and identifies the issues driving this analysis. Chapter 2 describes and compares the Proposed Action, alternatives to the Proposed Action, and a No-action Alternative. Chapter 3 describes the natural and human environments that could potentially be affected by the Proposed Action and alternatives, and also discloses the anticipated potential. Chapter 4 contains the list of preparers, the distribution list, literature cited, a glossary, and an index. Appendix A discusses the reasons for scheduling the Emerald Bay project environmental analysis now.

The Interdisciplinary Team (IDT) used a systematic approach to analyze the Proposed Action and alternatives to it, estimate the environmental effects, and prepare this EIS. The planning process complies with NEPA and the CEQ regulations. Planning was coordinated with the appropriate Federal, State and local agencies, and local federally recognized Tribes.

Proposed Action

A "Proposed Action" is defined early in the project-level planning process. This serves as a starting point for the IDT, and gives the public and other agencies specific information on which to focus comments. When the Draft EIS was published, three alternatives were considered in detail, and Alternative C was identified as the Proposed Action as well as the Preferred Alternative. Alternative C could provide information on the economic viability of long helicopter-yarding distances and the application of uneven-aged management prescriptions. This information could then be applied to upcoming larger projects on the

1 Purpose and Need

Cleveland Peninsula. Although the net stumpage value for Alternative C was negative, it was thought to be at least potentially implementable based on preliminary economic analysis.

Several things have occurred that have changed the intent, but not the need for this timber sale project. In April of 1999, Undersecretary of Agriculture James R. Lyons issued a new Record of Decision to the 1997 Tongass National Forest Land and Resource Management Plan that removed most of the Cleveland Peninsula from Timber Production land use designations.

Additional analysis performed subsequent to this decision showed Alternative C to be economically infeasible. The original (mid-market) appraisal of Alternative C, although negative, was not nearly as negative as the more recent analysis shows it to be. To assure the consideration of all reasonable alternatives in light of the best economic information, an additional, partially roaded alternative (Alternative D), with a continued emphasis on uneven-aged management was developed.

On January 12, 2001, the Roadless Area Conservation Rule was finalized. This rule, scheduled for implementation on May 12, 2001 would prohibit timber harvest and road building in Inventoried Roadless Areas. The Forest Service is reevaluating its Roadless Area Conservation Rule (Roadless Rule) and is currently enjoined from implementing all aspects of the Roadless Rule by the US District Court, District of Idaho. The Emerald Bay Draft EIS was issued prior to the deadline in the Roadless Rule, so this project could move forward regardless of the Roadless Rule status.

In *Sierra Club v. Lyons* (J00-0009 (CV)), the US District Court, District of Alaska enjoined the Tongass National Forest from taking any action to change the wilderness character of any eligible roadless area until a supplemental environmental impact statement evaluating wilderness recommendations for roadless areas has been prepared. On May 23, 2001, the Judge temporarily lifted this injunction pending a hearing and further order from the Court.

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In June 2001, the Forest Service Chief reserved authority for approval of projects in roadless areas to himself. In July 2001, the Chief delegated to the Regional Forester authority to sign Records of Decision for projects in Inventoried Roadless Areas with Forest Plan Revisions that analyzed roadless areas. The Regional Forester has since delegated this authority to the Forest Supervisor.

The Forest Service Transportation Policy requires that an area-specific roads analysis be completed and a determination of need for amendment or revision of the Forest Plan be made if any roads are to be constructed or reconstructed in inventoried roadless or contiguous unroaded areas, until a forest-wide roads analysis has been completed (FSM 7712.16(c)). This analysis has been made for the Emerald Bay project and can be found in the project planning record. The determination can be found in Appendix 3 of the Record of Decision.

A separate interim directive (7710-2001-1) extends the deadlines for requiring roads analysis for all road management decisions to January 12, 2002 (FSM 7712.15), but does not apply to FSM 7712.16.

Decision to be Made

Based on the environmental study and analysis in this EIS, and pending the outcome of the above mentioned legal debates, the Tongass Forest Supervisor will decide whether and how to make timber available from the Emerald Bay project area in accordance with Forest Plan goals, objectives and desired future conditions.

This decision will include:

- the location, design and schedule of timber harvest, silvicultural prescriptions, road construction and reforestation, and associated facilities;
- access management measures (road restrictions and closures);
- mitigation measures and monitoring requirements; and
- whether or not there may be a significant possibility of a significant restriction on subsistence use.

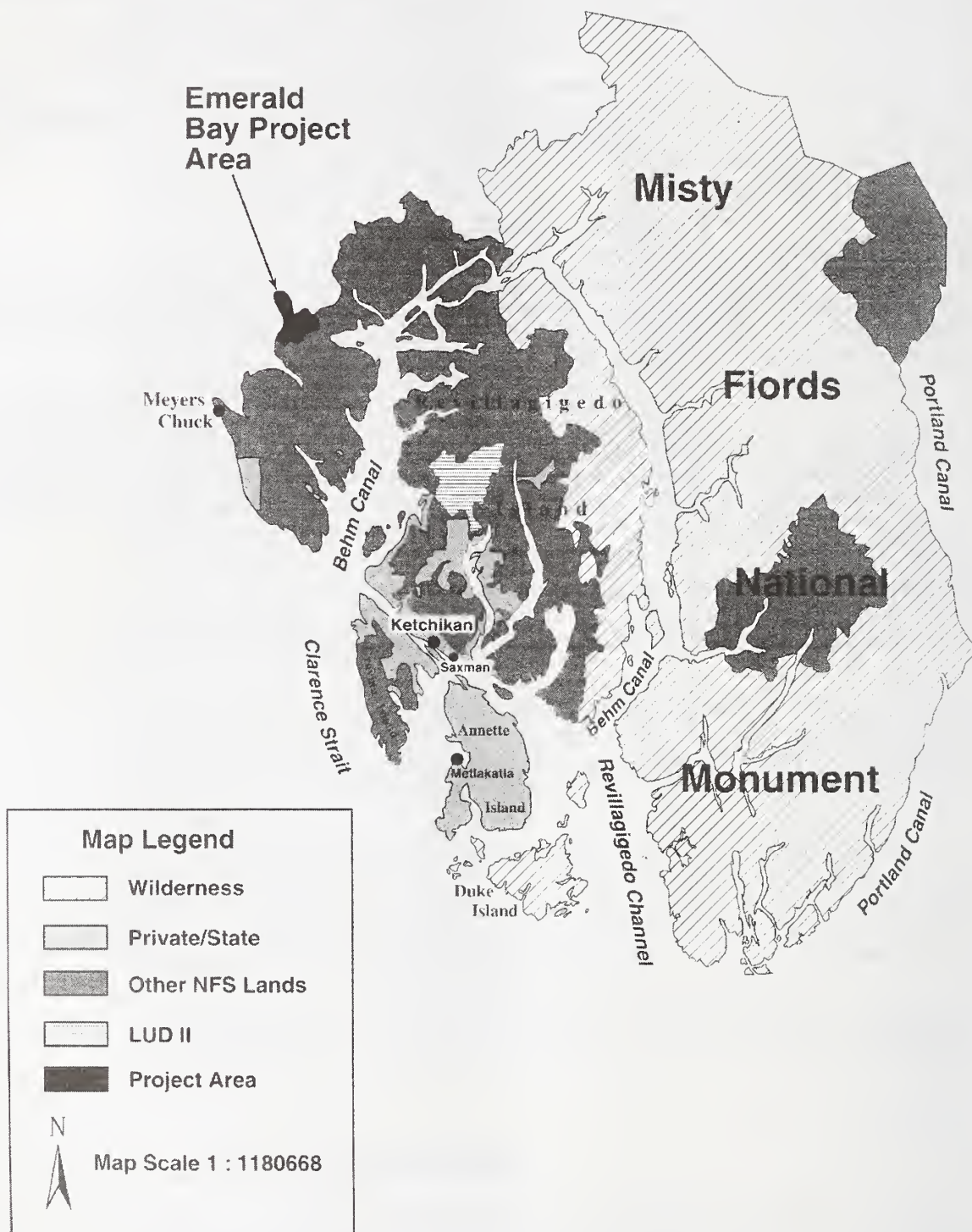
Project Area

The 7,845-acre Emerald Bay project area is located approximately 40 air miles north of Ketchikan, Alaska (Figure 1-1). It is located on the Cleveland Peninsula in the Emerald Creek and Birch Creek watersheds. Access to the area is by small plane originating in Ketchikan or Wrangell or by boat through Ernest Sound.

The project area includes value comparison unit (VCU) 7210. Value comparison units are defined in the Introduction to Chapter 3. For analysis purposes, the project area boundaries are considered to be the same as the VCU boundaries. The VCU boundaries generally follow major watershed divides; however, the southern tip of the project area crosses slightly into the Wasta Creek drainage, which drains into Spacious Bay. VCU 7210 is delineated in Figure 1-2.

1 Purpose and Need

Figure 1-1
Project Area Vicinity Map



Source: GIS, Pete Klein, 2001

Purpose and Need

The Emerald Bay project is proposed at this time to respond to goals and objectives of the Forest Plan, and to help move the project area toward desired future conditions described in that plan. The Purpose and Need for this project has always had two distinct components. The first part is to implement Forest Plan direction for the Timber Production land use designation as follows:

- Manage the timber resource for production of saw timber and other wood products from suitable timber lands made available for timber harvest, on an even-flow, long-term sustained yield basis and in an economically efficient manner.
- Seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber, and the market demand for the planning cycle.
- Provide a diversity of opportunities for resource uses that contribute to the local and regional economies of Southeast Alaska.
- Support a wide range of natural resource employment opportunities within Southeast Alaska's communities.

The second part of the Purpose and Need is specific to the Emerald Bay project and departs from traditional timber sale harvest methods that have been the usual approach in Southeast Alaska. These project objectives are:

- Provide insight and information into possible approaches to timber harvest with minimal road building, using uneven-aged management techniques to maintain a diverse range of structures and a variety of wildlife habitats.
- Provide an opportunity to gather information on non-traditional log removal techniques such as uneven-aged helicopter harvesting and low-impact roading.
- Attempt to minimize disturbance in adjoining Old-growth LUDs and minimize fragmentation of roadless areas while still meeting the goals, objectives and desired condition for the Timber Production LUD.
- Provide local employment opportunities in the wood products industry, consistent with providing for the multiple use and sustained yield of all renewable forest resources.

As the project evolved through the steps in the NEPA process, several policy changes were made and other trial projects implemented that changed the focus of the Emerald Bay proposal, although encompassed by the two components of the Purpose and Need described above. These include the January 12, 2001 decision on the Roadless Area Conservation Policy, implementation pending legal decisions that would prohibit future harvest entries and road building on this portion of the Cleveland Peninsula, and implementation of the Forest Service Transportation Policy that requires more specific roads analysis before projects can be implemented. The rest of the objectives can still be met to varying degrees, as discussed in the Comparison of Alternatives section in Chapter 2 of the Final EIS.

Appendix A of this EIS provides a more detailed rationale for why the Emerald Bay project area was selected for analysis at this time. Further clarification can be found in the next section regarding this project's relationship to the Forest Plan.

Relationship to the Forest Plan

The analysis for this project tiers directly to the Forest Plan. The revision to the Forest Plan involved extensive public participation for many years. A Record of Decision was signed in 1997. A subsequent Record of Decision superseded the 1997 Record of Decision in May 1999. The Emerald Bay Project Area Draft Environmental Impact Statement followed the direction of the 1999 Record of Decision. In *AFA v. USDA*, the US District Court, District of Alaska vacated the 1999 Record of Decision for the Tongass Forest Plan and upheld the 1997 Record of Decision on March 30, 2001. The Final Environmental Impact Statement for the Emerald Bay Area is consistent with the 1997 Record of Decision for the Revised Tongass Land and Resource Management Plan.

The Emerald Bay EIS is a project-level analysis; its scope is confined to issues about the effects of the project. It does not attempt to address decisions made at higher levels. It does, however, implement direction provided at those higher levels.

The Forest Plan embodies the provisions of the National Forest Management Act, its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Tongass National Forest. The Forest Plan is a result of extensive analysis, which is addressed in the Forest Plan Final EIS. When appropriate, the Emerald Bay EIS tiers to the Forest Plan Final EIS, as encouraged by 40 CFR 1502.20. Also, this EIS will summarize and cite documented analyses, rather than repeat the entire analysis.

The Forest Plan includes area-specific goals, objectives, and desired future conditions. The Forest Plan uses land use designations (LUDs) to guide management of National Forest Lands within the Tongass. Each designation provides for a unique combination of activities, practices and uses. The Emerald Bay project area includes two LUDs: Timber Production and Old-growth Habitat. The goals of each are described below and their locations are shown in Figure 1-2. The Forest Plan (Chapter 3) contains a detailed description of each LUD.

Table 1-1 gives the acreages within the project area of each LUD.

Table 1-1
Project Area Land Allocation Acreages (National Forest Acres)

Timber Production	Old-growth Habitat	Project Area Total
2,586	5,259	7,845

Source: Forest Plan

Timber Production

The goals for the Timber Production LUD are similar to the Forest-wide goals and objectives listed above. For the Timber Production LUD, the desired future condition includes healthy stands in a balanced mix of age classes from young to harvestable. The goals of this designation are to: 1) maintain and promote industrial wood production from suitable timber lands, providing a continuous supply of wood to meet society's needs; 2) manage these lands for sustained long-term timber yields; and 3) seek to provide a supply of timber from the Tongass National Forest which meets the annual and planning-cycle market demand, consistent with the standards and guidelines of this LUD.

Applicable objectives include:

- Seek to reduce clearcutting when other methods will meet land management objectives.

Land Use Designations

- Improve timber growth and productivity on commercial forest lands.
- Plan, inventory, prepare, offer, sell, and administer timber sales and permits to ensure the orderly development of timber production.

Old-growth Habitat

Within areas allocated to the Old-growth Habitat LUD, the desired condition is that all forested areas attain old-growth forest characteristics and provide a diversity of Old-growth Habitat types. The primary goals of the Old-growth Habitat LUD are to: 1) maintain areas of old-growth forests and their associated natural ecological processes to provide habitat for old-growth associated resources, and 2) manage early seral conifer stands to achieve old-growth forest characteristic structure and composition based on site capability (Forest Plan, p. 3-76).

Applicable objectives include:

- Provide old-growth forest habitats, in combination with other LUDs, to maintain viable populations of... fish and wildlife species... that may be closely associated with old-growth forests.
- Contribute to the habitat capability of fish and wildlife resources to support sustainable human subsistence and recreational uses.

The Emerald Bay project is designed to respond to these goals and objectives, and to move the project area towards the desired future conditions of the land use designations. The project proposes timber harvesting on selected suitable timber lands for the production of sawtimber and other wood products, to help meet market demands for timber and provide resource production opportunities and employment for local communities. Harvest methods other than traditional clearcutting are proposed; harvest is expected to improve timber growth and contribute towards a balance of age classes. The area allocated to medium Old-growth Habitat Reserve comprises 67 percent of the project area. It is part of the Forest-wide system of Old-growth Habitat Reserves.

The following standards and guidelines delineate areas not available for programmed timber harvest within the Timber Production LUD. Each applies to a specific habitat or ecological component. More detailed information about these and other standards and guidelines can be found in the Forest Plan, Chapter 4

Beach and Estuary Fringe

The beach and estuary fringe is an area of approximately 1,000 feet inland from mean high tide around all marine coastline. Programmed timber harvest is not allowed and roads are located outside the fringe when possible.

Karst and Caves

Surveys were conducted to search for karst and caves. No karst or caves were located within the project area.

Riparian

Riparian Management Areas are areas of special concern regarding fish, other aquatic resources, and wildlife. These areas are delineated according to the process-group direction in the Riparian Forest-wide Standards and Guidelines. Timber harvest is not proposed within Riparian Management Areas.

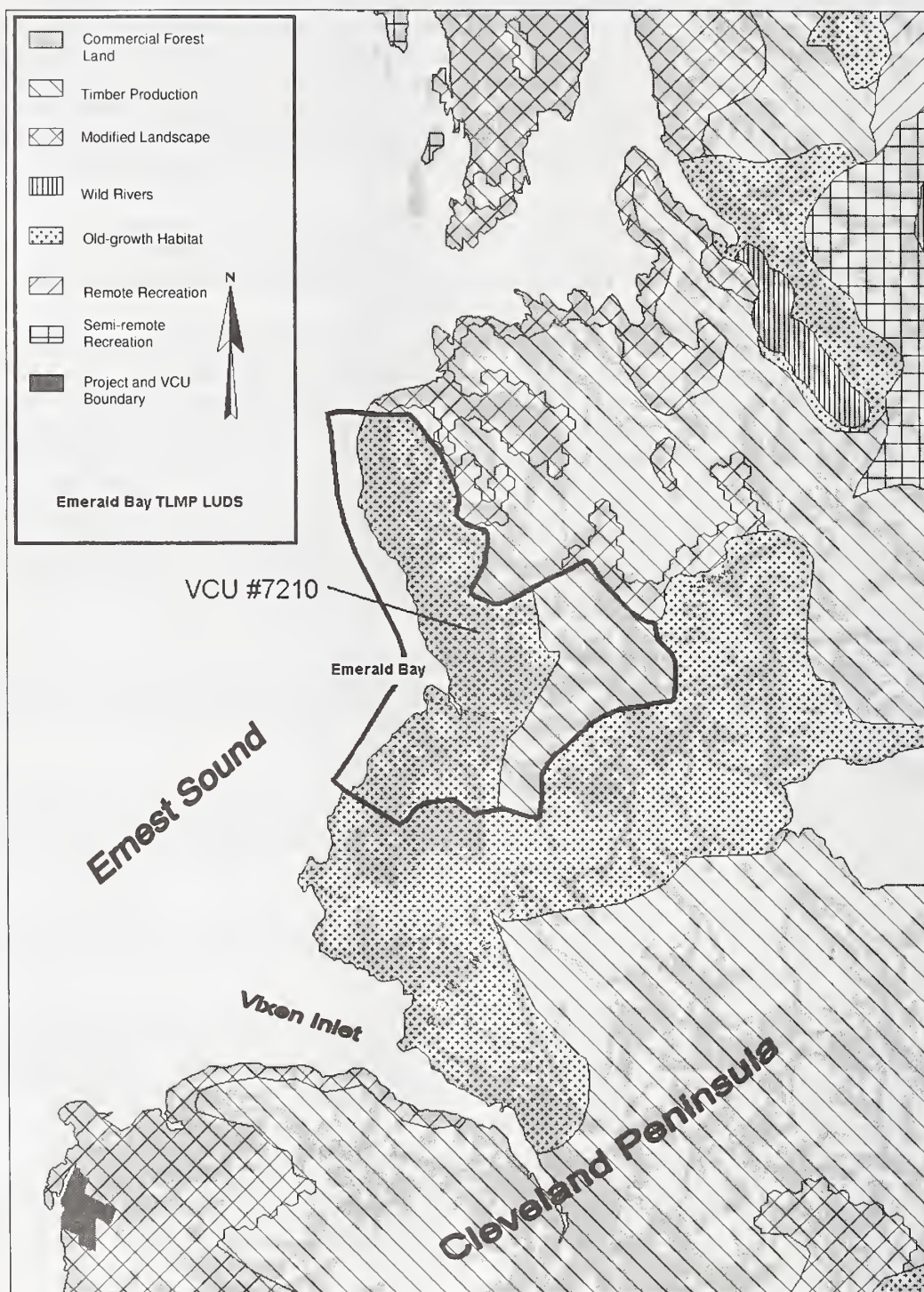
Other Land Status within the Project Area

This designation includes those lands within a project area which have been conveyed to the State, Native corporations or other private entities. There are no lands within the Emerald Bay project area which have been conveyed to State, Native or private ownership.

Key Forest-wide Standards and Guidelines in Project Area

1 Purpose and Need

Figure 1-2
Emerald Bay Project Area, Land Use Designations and Value Comparison Units



Source: GIS, Pete Klein, 2001

Public Involvement

Scoping

The Council on Environmental Quality (CEQ) defines scoping as "...an early and open process for determining the scope of issues to be addressed and for identifying the key issues related to a Proposed Action" (40 CFR 1501.7). The scoping process was used to invite public participation and collect initial comments. The public was invited to participate in the project in the following ways.

Notice of Intent (NOI)

A Notice of Intent was published in the *Federal Register* on August 17, 1998, when it was decided that an EIS was to be completed for the project.

Public Mailing

In early August 1998, a letter providing information and seeking public comment (scoping document) was mailed to approximately 140 individuals and groups that had previously shown interest in Forest Service projects in Southeast Alaska. The mailing included seven Federal agencies, five State agencies and divisions, 22 Native and municipal offices, and 106 businesses and other organizations, groups, and individual citizens. Approximately 28 responses to this initial mailing were received.

Local News Media

Legal announcements about the project were printed in the August 15-16, 1998 weekend edition of the *Ketchikan Daily News* and the *Wrangell Sentinel* issue of August 13. A display advertisement with map, describing the project, was placed in the August 15-16, 1998, weekend edition of the *Ketchikan Daily News*.

Public Meetings

A public meeting was held at the Narrows Inn in Ketchikan on August 24, 1998 to provide information and discuss potential areas of concern and or interest that should be addressed in the Emerald Bay project.

Draft EIS

Availability of Draft EIS for Public Comment

Availability of the Draft EIS was announced on January 28, 2000, both in the *Federal Register* and through notices in local papers. These notices started a public comment period. Documents were also mailed to Federal and State agencies, Native and municipal offices, and others who requested them. Due to uncertainty as to when publication in the Federal Register would occur, the comment period was extended well beyond the required 45 days to April 15, 2000.

Public Information Meeting

A public information meeting was held on March 2, 2000 to introduce a fourth alternative, D, which combined elements of Alternatives B and C. Alternative D was developed to include new economic information which came to light after the Draft EIS was published.

Project Update

Project Update Letter

A project update letter was sent to the Draft EIS mailing list on March 20, 2000 incorporating comments from the public meeting and detailing Alternative D. In order to allow adequate time for comments, this letter extended the comment period on the Draft EIS to May 5, 2000 for a total of 98 days.

Analysis and Incorporation of Public Comment

Twenty-two agencies, organizations, and individuals submitted written comments on the Emerald Bay Draft EIS. The IDT analyzed and incorporated these comments into the Final EIS wherever possible. Public comments, along with the Forest Service's responses, are listed in Appendix B of the Emerald Bay Final EIS and summarized in the Record of Decision.

1 Purpose and Need

Issues

Issues Associated with the Proposed Action

Issues for the Emerald Bay project were identified through public and internal scoping. Similar issues were combined into one statement where appropriate. The following two issues were determined to be key and within the scope of the project decision. These issues are addressed through the Proposed Action and alternatives.

Timber Economics and Supply

This issue encompasses public concern over:

- the amount of timber available and proposed for harvest,
- the methods of timber harvest,
- whether or not timber harvest should be continued,
- balancing timber production with other forest uses,
- how the project contributes to the long-term timber supply, and
- cost-effective timber harvest.

Roadless and Road Construction

This issue is construction of roads into areas available for timber management but currently unroaded, and management of those roads following timber harvest. Of particular concern is road building on the Cleveland Peninsula in general, as well as roading through a medium Old-growth Reserve. As the project analysis progressed, many people expressed the desire to see the Cleveland Peninsula remain unroaded while others objected to both roading and timber harvest.

Other Concerns

The following public concerns were considered but determined not to be key issues. Some are already addressed through other processes or in the Forest Plan, or their resolution is beyond the scope of this project.

Forest Plan Management Prescriptions (Land Use Designations)

This issue focuses on the desire of some commenters to change the Forest Plan management prescriptions in order to eliminate, reduce, or increase the level of harvest (ASQ) and/or maximize specific resources. Included within this issue are suggestions that Forest Plan Standards and Guidelines or Best Management Practices not be implemented. Comments regarding the general management of the Tongass National Forest, management prescriptions, or procedural issues are beyond the scope of this project.

Regional Timber Supply and Demand Should be Refigured

Analysis of timber supply and demand is a Regional issue which exceeds the scope of this analysis. This issue was addressed as part of the Forest Plan process. A site-specific environmental analysis documents the effects of the proposed activities. Trying to predict the effects of the proposed activities upon the Regional timber supply and demand is beyond the capability and scope of this document, other than concluding that timber offerings resulting from the project will contribute volume to the Regional timber supply and will help meet demand. The volume of timber cleared in a NEPA document may be offered in whole, in part, or not at all, depending upon rapidly changing market conditions or other factors important in the overall management of the national forests. The issue of how the project contributes to the long-term timber supply is addressed as part of Issue 1: Timber Economics and Supply and in Appendix A.

Cleveland Peninsula Road (Off Island) Transportation Link

The Cleveland Peninsula road connection is not a connected or reasonably foreseeable action that is ripe for a decision. The proposed transportation link is located approximately 6 air-

miles from the project area. About 12 miles of road would be needed to service the proposed link.

Do Not Use a Predetermined Harvest Volume

The Council on Environmental Quality requires an implementable Proposed Action, which would include a harvest volume. Other alternatives represent different responses to the key issues identified above.

Soils, Hydrology, and Fisheries

Mitigation measures, including stream buffers, will be used to prevent significant impact to water quality and fisheries habitat (Forest Plan, Chapter 4 and Appendix C). These mitigation measures include the Tongass Timber Reform Act (TTRA) buffers, Forest Plan Riparian Management areas, beach fringe, construction timing restrictions, and limiting harvest on unstable soils.

Recreation and Scenic Quality

Comments mentioned the importance of protecting the scenic quality from Ernest Sound. This issue is adequately addressed in the Forest Plan Standard and Guidelines and the further Tongass Plan Implementation Team (TPIT) clarifications. Forest management activities would have nonsignificant impacts to existing recreational pursuits by users of the Emerald Bay project area. However, increased human access, timber harvest, and other developments could affect recreation values and opportunities such as hunting, fishing, and scenic quality.

Heritage Resources

A heritage resource survey was conducted and all sites will be avoided in accordance to law. The heritage resource report has been submitted (#1998-05-17) to the Alaska State Historic Preservation Office (SHPO).

Federal and State Permits, Licenses, and Certifications

Prior to implementation of the proposed timber sale, various permits must be obtained from Federal and State agencies. Administrative actions on these permits would be initiated after the EIS is filed with the Environmental Protection Agency (EPA). The agencies and their responsibilities are listed below.

U.S. Army Corps of Engineers

- Approval of discharge of dredged or fill material into waters of the United States (Section 404 of the Clean Water Act of 1977, as amended)
- Approval of construction of structures or work in navigable waters of the United States (Section 10 of the Rivers and Harbors Act of 1899)

U.S. Coast Guard

- Coast Guard Bridge Permit (in accordance with the General Bridge Act of 1946) required for all structures constructed across navigable waters of the U.S.

U.S. Environmental Protection Agency

- Storm water discharge permit
- National Pollutant Discharge Elimination System review (Section 402 of the Clean Water Act)

State of Alaska, Department of Environmental Conservation

- Certification of compliance with Alaska Water Quality Standards (Section 401 Certification)
- Solid Waste Disposal Permit (Section 402 of the Clean Water Act)

State of Alaska, Department of Natural Resources

- Authorization for occupancy and use of tidelands and submerged lands

Legislation and Executive Orders

Shown below is a brief list of laws pertaining to project-specific planning and environmental analysis on Federal lands. Some of the laws are specific to Alaska, while others pertain to all Federal lands.

- National Historic Preservation Act of 1966 (as amended)
- National Environmental Policy Act (NEPA) of 1969 (as amended)
- Clean Air Act of 1970 (as amended)
- Alaska Native Claims Settlement Act (ANCSA) of 1971
- Marine Mammal Protection Act of 1972
- Endangered Species Act (ESA) of 1973 (as amended)
- Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 (as amended)
- National Forest Management Act (NFMA) of 1976 (as amended)
- National Transportation Policy (2001)
- Clean Water Act of 1977 (as amended)
- Magnuson-Stevens Fishery Conservation and Management Act
- American Indian Religious Freedom Act of 1978
- Alaska National Interest Lands Conservation Act (ANILCA) of 1980
- Archeological Resource Protection Act of 1980
- Cave Resource Protection Act of 1988
- Tongass Timber Reform Act (TTRA) of 1990
- Graves Protection and Repatriation Act of 1990
- Executive Order 11988 (Floodplain Management)
- Executive Order 11990 (Wetlands)
- Executive Order 11593 (Heritage)
- Executive Order 12962 (Aquatic Systems and Recreational Fisheries)
- Executive Order 12898 (Environmental Justice)

Coastal Zone Management Act

In addition, the Coastal Zone Management Act (CZMA) of 1976, as amended, pertains to the preparation of an EIS. Federal lands are not included in the definition of the coastal zone as prescribed in the CZMA. However, the Act requires that when Federal agencies conduct activities or developments that affect the coastal zone, that the activities or development be consistent to the maximum extent practicable with the approved State Coastal Management Program. This determination is made by the Forest Service.

The Alaska Coastal Management Plan incorporated the Alaska Forest Resources and Practices Act of 1979 Standards and Guidelines for timber harvesting and processing. The Forest Service Standards and Guidelines and mitigation measures described in Chapters 2 and 3 of this document meet or exceed State standards.

Availability of the Planning Record

An important consideration in preparation of this EIS has been reduction of paperwork as specified in 40 CFR 1500.4. In general, the objective is to furnish enough site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and how these impacts can be mitigated. The planning record contains material which documents the NEPA process and analysis from the beginning of the project to the publication of the Final EIS.

The planning record is located at the Ketchikan–Misty Fiords Ranger District office in Ketchikan, Alaska. Reference documents such as the Forest Plan, the Tongass Timber Reform Act, the Resources Planning Act, and the Alaska Regional Guide are available at public libraries around the Region as well as at the Supervisor's Offices in Ketchikan, Petersburg and Sitka. The Forest Plan is also available on the internet (<http://www.fs.fed.us/r10/tongass/>) and on CD-ROM.

Chapter 2

Alternatives

Chapter 2

Alternatives

Introduction

This chapter describes and compares the alternatives considered by the Forest Service for the Emerald Bay project. It includes a discussion of how alternatives were developed, an overview of mitigation measures, monitoring and other features common to all alternatives, a description and map of each alternative considered in detail, and a comparison of these alternatives focusing on the key issues. Chapter 2 is intended to present the alternatives in comparative form, sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14).

Some of the information in Chapter 2 is summarized from Chapter 3, “Affected Environment and Environmental Consequences.” Chapter 3 discusses the scientific basis for establishing baselines and measuring the potential environmental consequences of each of the alternatives. For a full understanding of the effects of alternatives, readers will need to consult Chapter 3.

Landscape Analysis

The Emerald Bay project area (7,845 acres) was included in the larger Cleveland planning area that had been shown on the Tongass National Forest multi-year timber sale plans for the last several years. The Cleveland planning area encompassed that portion of the Cleveland Peninsula that lies within the Ketchikan-Misty Fjords Ranger District and was designated by the Forest Plan as predominantly Timber Management. Previous attempts at scheduling management on the Cleveland Peninsula had generated divided community reaction, with many people opposed to timber harvest there.

The unit pool for the Emerald Bay project was based on the suitable and available commercial forest lands represented in the Forest Plan. This unit pool and the roads needed to access the units were then evaluated in the field. Acknowledging public sentiment, the Forest Service proposed an uneven-age, no-road approach to the Emerald Bay project area. Alternative C was presented as the Proposed Action during initial public scoping in 1998 and 1999.

Changes Between Draft and Final

In the Draft EIS, the Forest Service identified Alternative C as the Preferred Alternative. Alternative C would harvest approximately 8 to 12 million board feet (MMBF) of timber from approximately 745 acres of National Forest System land through a single timber sale beginning in the year 2002. This would require no new road construction and no log transfer facility (LTF) construction. Logs would be transported to barges in Emerald Bay using helicopter yarding. Timber would be sold from this project in a single sale. The project would have a

very light touch on the land and provide information on helicopter yarding which could be applied to future sales planned on the peninsula.

Since the Draft EIS was published in January 2000, land management direction on much of the rest of the Cleveland Peninsula has shifted more than once. The 1997 Tongass Land Management Plan assigned approximately 81,000 acres of the 299,000 acres in the Cleveland and North Cleveland Roadless areas to land use designations in which timber harvest is permitted (Timber, Modified Landscape, and Scenic Viewshed). In April 1999 Undersecretary of Agriculture Lyons issued a new Record of Decision for TLMP, changing most of the Cleveland Peninsula to non-development designations. In April 2001, Judge Singleton, in *AFA v. Forest Service*, vacated Undersecretary Lyon's decision, returning us to the 1997 Forest Plan.

At the same time, further analysis of Alternative C, based on site-specific field data and the most recent timber R10 appraisal system, demonstrated it to be economically infeasible under any market scenario. The original preliminary (mid-market) appraisal of Alternative C, although negative, was not nearly as negative as the more recent and detailed analysis now shows it to be.

To assure that all reasonable alternatives are considered in light of the best economic information, we developed an additional, partially roaded alternative (Alternative D), with a continued emphasis on uneven-aged management.

This alternative would harvest approximately 11.2 MMBF using the same uneven-aged silvicultural prescriptions identified in Alternative C. It would also build 3.8 miles of low-impact road and one land-to-barge log transfer facility in order to improve the economics through decreased helicopter-yarding distances. Alternative D represents a combination of Alternatives B and C, and is within the range of alternatives considered in the published Draft EIS.

Development of Alternatives

Each alternative presented in this EIS provides a different response to the key issues for the Emerald Bay project. Each alternative represents a site-specific proposal developed through intensive interdisciplinary team evaluation of timber harvest unit and road design, based on field verification. Unit identification and design also made use of topographic maps and aerial photos, and a large quantity of resource data available in geographic information system (GIS) format.

The IDT used information from the analysis of scoping comments, in conjunction with the field-verified pool of units for the project area, to formulate different alternative approaches. Preliminary analysis and management direction were used to further refine the alternatives described here for the Emerald Bay project.

Items Common to All Alternatives

Many of the resource concerns raised during scoping, interagency discussions, and subsequent analysis did not become key issues driving alternative development. Some of these concerns were addressed by eliminating potential harvest acreage from consideration at this time, and others have been, or will be, addressed during the design and implementation of the proposed activities. For example, various resource standards and guidelines from the Forest Plan, and the applicable BMPs used to meet requirements of the Clean Water Act, are automatically applied when potential harvest units or roads are located and designed. Also, based on resource analysis and/or interdisciplinary work, additional mitigation measures can be applied for specific proposed activities.

Standards and Guidelines

Applicable Forest Plan Standards and Guidelines, Best Management Practices (BMPs), and other specific mitigation measures are identified on the harvest unit and road cards for the project (located in Appendices 1 and 2 of the Record of Decision). The following items are listed to highlight some of the key mitigation measures, findings, or processes applied to the project that are common to all alternatives; they are by no means a complete list.

Fish and Marine Habitats

Forest Plan Standards and Guidelines for riparian areas apply to all lakes and streams within the project area.

Watershed analysis for the project has included landscape, watershed, and site-level considerations. No opportunities were identified for reducing Riparian Management Area boundaries, although some were increased.

Road cards show which streams are likely to need special attention during implementation, such as the use of timing restrictions for in-stream activities, larger culverts, or bridges.

No new log transfer facilities (LTF) are proposed for Alternative C. Alternative C proposes to place logs directly onto barges using helicopter yarding. One new LTF is proposed in Alternatives B and D. This LTF is proposed as a land-to-barge LTF.

Heritage Resources

Forest Plan Standards and Guidelines for heritage resources state that the preferred management of sites listed in, nominated to, or eligible for the National Register of Historic Places is avoidance and protection (p. 4-15). Evaluation of the data collection needs and survey strategy is described in a 1995 Agreement between the Forest Service Alaska Region, Alaska State Historic Preservation Office, and the Advisory Council on Historic Preservation (#95MOU-10-029). This agreement modifies the standard procedures described in Section 106 of the National Historic Preservation Act, 1966.

No significant historic properties were discovered during field investigations (USDA FS CRM Reports 1998-05-17).

Most of the planned management activities in the Emerald Bay project area fall in low-sensitivity areas for heritage resources as defined in the 1995 Agreement (#95MOU-10-029); they occur at elevations above 100 feet and do not possess other characteristics which would suggest focused historic or prehistoric activities. Field investigations were concentrated within areas of higher potential for locating significant heritage resource sites along the coast and estuaries including the proposed LTF location. The possibility that significant historic properties exist within the Area of Potential Effects for this project is very low. The Alaska State Historic Preservation Officer concurred with the recommendation that no significant heritage resource sites would be affected by the proposed activities based upon the literature review and subsequent field investigations. Following harvest, a sample of roads and units would be monitored to test the assumptions of the sensitivity model.

Soils, Water Quality and Wetlands

Potential harvest units with slopes greater than 72 percent have received an on-site analysis of slope and Class IV channel stability, and an assessment of potential downstream effects. Only areas with low levels of risk are included in the unit pool.

Proposed road locations avoid slopes greater than 67 percent, unstable areas, and slide-prone areas where it is feasible to do so.

All proposed roads have been located and will be designed to avoid or minimize effects on wetlands.

Subsistence

All alternatives have been evaluated in compliance with ANILCA, Title VIII, Section 810.

2 Alternatives

Timber Harvesting

In Alternatives C and D, non-clearcut prescriptions are used for all harvest units. Types of harvest include individual tree and group selection. Alternative B has a combination of traditional clearcutting and individual tree selection.

Risks from windthrow have been evaluated, and methods to minimize windthrow are incorporated into all harvest unit prescriptions.

Wildlife Habitat

The Forest Plan conservation biology strategy, including all species-specific standards and guidelines, is considered sufficient to maintain habitat for viable populations for all species potentially within the project area.

Each alternative complies with the Forest Plan conservation biology strategy designed to ensure well-distributed viable populations of wildlife.

Alternatives B and D propose building 2.2 miles of road through the medium Old-growth Reserve. The Forest Plan (3-76) allows this if no other options are feasible.

The small Old-growth Habitat Reserves (Old-growth Habitat Land Use Designation) mapped in the Forest Plan are required to be evaluated for size, spacing, and habitat composition. Two small Old-growth Habitat Reserves in the Emerald Bay vicinity have been evaluated with interagency involvement. There are no recommendations to adjust small Old-growth Habitat Reserves at this time because 67 percent of the VCU is in productive old growth non-development land use designation.

Alternatives Considered in Detail

The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.10(e)) state that EISs shall consider "alternatives including the Proposed Action." Alternative C reflects the agency's original Proposed Action. Three other alternatives to the Proposed Action are also considered in detail. Alternative A is the No-action Alternative, under which the project area would have no timber harvest or road construction at this time. Alternatives B and D represent different means of satisfying the Purpose and Need, by responding with different emphases to the key issues discussed in Chapter 1. Alternative D combines elements of both B and C.

The emphasis of Alternative A, No Action, is to propose no new timber harvest or road construction from the Emerald Bay project area at this time. It does not preclude timber harvest from other areas at this time, or from the Emerald Bay project area at some time in the future. The Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14(d)) require that a "No Action" alternative be analyzed in every EIS. This alternative represents the existing condition against which all other alternatives are compared.

Table 2-1
Alternative A - No Action

Category	Unit of Measure	Amount
Harvest Method		
Clearcut	acres	0
Individual Tree Selection	acres	0
Group Selection	acres	0
Harvest Volume ¹	MMBF ²	0
Harvest System ¹		
Long Span Cable	acres	0
Short Span Cable	acres	0
Helicopter	acres	0
Shovel	acres	0
Roads		
New construction	miles	0
LTF construction	#	0
Economics		
Average harvest cost	\$/MBF	\$0
Net Stumpage Value ³	\$/MBF	\$0
Employment	jobs/year	0

¹excluding additional right-of-way volume
²MMBF = million board feet
³at current market prices
Source: C. Grundy

Alternative A (No Action)

2 Alternatives

Alternative B

The emphasis of Alternative B is to progress toward the desired future condition for timber management while meeting Forest Plan Standards and Guidelines for other resources. Timber volume made available is maximized in this entry under this alternative. This alternative would utilize traditional even-aged silvicultural systems on 100-year rotations. Economics efficiency is also emphasized through use of road building and conventional cable yarding systems.

Alternative B proposes to harvest 599 acres of commercial forest land in eight harvest units producing 16.3 million board feet (MMBF) of timber. New road construction totals 6.2 miles, 2.2 miles of which bisect the medium Old-growth Habitat Reserve.

This alternative would utilize a barge LTF site (at high tide only).

The average size of harvest units is 75 acres.

Timber harvested through the implementation of Alternative B would most likely be sold as one timber sale. Average harvest costs would be \$243.00 per MBF.

After harvest activities are completed, all roads would be closed.

Table 2-2
Alternative B - Harvest Objectives and Practices

Category	Unit of Measure	Amount
Harvest Method		
Clearcut	acres	421
Individual Tree Selection	acres	178
Group Selection	acres	0
Harvest Volume ¹	MMBF ²	16.3
Harvest System ¹		
Long Span Cable	acres	117
Short Span Cable	acres	269
Helicopter	acres	185
Shovel	acres	28
Roads		
New construction	miles	6.2
LTF construction	#	1
Economics		
Average harvest cost	\$/MBF	\$243
Net Stumpage Value ³	\$/MBF	\$95
Employment	jobs/year	87

¹excluding additional right-of-way volume

²MMBF = million board feet

³at current market prices

Source: C. Grundy

Alternative C

The objective of this alternative is to emphasize uneven-aged management by using selection harvest methods to maintain at least three distinct age-classes. To lessen impact, subsequent entries would be widely spaced over intervals of 50-100 years. This approach seeks to avoid road construction, provide timber volume, gather information on long-distance helicopter harvesting, and maintain the integrity of large, unfragmented blocks of old-growth forest.

Alternative C proposes to harvest 625 acres of commercial forest land in ten harvest units producing 10.8 million board feet (MMBF) of timber.

The average unit size is 63 acres.

Timber produced through the implementation of Alternative C would most likely be sold in a single timber sale. Average harvest costs would be \$504.00 per thousand board feet (MBF). Alternative C proposes no roads or LTFs.

Table 2-3
Alternative C - Harvest Objectives and Practices

Category	Unit of Measure	Amount
Harvest Method		
Clearcut	acres	0
Individual Tree Selection	acres	569
Group Selection	acres	56
Harvest Volume ¹	MMBF ²	10.8
Harvest System ¹		
Long Span Cable	acres	0
Short Span Cable	acres	0
Helicopter	acres	625
Shovel	acres	0
Roads		
New construction	miles	0
LTF construction	#	0
Economics		
Average harvest cost	\$/MBF	\$504
Net Stumpage Value ³	\$/MBF	- \$170
Employment	jobs/year	57

¹excluding additional right-of-way volume

²MMBF = million board feet

³at current market prices

Source: C. Grundy

2 Alternatives

Alternative D

The objective of Alternative D is to balance economics with resource and social concerns. It would emphasize uneven-aged management by using selection harvest methods and, like Alternative C, would schedule subsequent entries over intervals of 50-100 years. In order to increase the economic efficiency, this alternative proposes to build 3.8 miles of low-impact access road, 2.2 miles of which bisects the medium Old-growth Habitat Reserve. The purpose of this road is to shorten the helicopter yarding distance, decreasing the total harvest cost and conversely increasing net stumpage value.

This approach seeks to minimize road construction and provide more economical timber volume, while limiting impacts to the "roadless character" of the Cleveland Peninsula.

Alternative D proposes to harvest 625 acres of commercial forest land in ten harvest units producing 11.2 million board feet (MMBF) of timber.

This alternative would utilize a barge LTF site (at high tide only).

The average unit size is 63 acres.

Timber produced through the implementation of this alternative would most likely be sold in a single timber sale. Average harvest costs would be \$319.00 per thousand board feet (MBF).

Table 2-4
Alternative D - Harvest Objectives and Practices

Category	Unit of Measure	Amount
Harvest Method		
Clearcut	acres	0
Individual Tree Selection	acres	569
Group Selection	acres	56
Harvest Volume ¹	MMBF ²	11.2
Harvest System ¹		
Long Span Cable	acres	0
Short Span Cable	acres	0
Helicopter	acres	625
Shovel	acres	0
Roads		
New Construction	miles	3.8
LTF Construction	#	1
Economics		
Average Harvest Cost	\$/MBF	\$319
Net Stumpage Value ³	\$/MBF	\$31
Employment	jobs/year	59

¹excluding additional right-of-way volume

²MMBF = million board feet

³at current market prices

Source: C. Grundy

Comparison of Alternatives

This section compares outputs, objectives and effects of the alternatives in terms of the key issues for the Emerald Bay project. The discussions of effects are summarized from Chapter 3; for a full understanding of the effects, Chapter 3 should also be read. The table below provides an overview comparison of information from the alternative descriptions. This information will be used in the discussions which follow.

Table 2-5
Comparison of Action Alternatives - Outputs, Objectives and Effects

Category	Unit of Measure	Alt A	Alt B	Alt C	Alt D
Harvest Method					
Clearcut	acres	0	421	0	0
Individual Tree	acres	0	178	569	569
Group Selection	acres	0	0	56	56
Harvest Volume ¹	MMBF ²	0	16.3	10.8	11.2
Harvest Units					
Number of Units	#	0	8	10	10
Average Unit Size	acres	0	75	63	63
Harvest System ¹					
Long Span Cable	acres	0	117	0	0
Short Span Cable	acres	0	269	0	0
Helicopter	acres	0	185	625	625
Shovel	acres	0	28	0	0
Roads					
New Construction	miles	0	6.2	0	3.8
LTF Construction	#	0	1	0	1
Economics					
Average Harvest Cost	\$/MBF	0	\$243	\$504	\$319
Net Stumpage Value ³	\$/MBF	0	\$95	- \$170	\$31
Employment	jobs/year	0	87	57	59

¹excluding additional right-of-way volume
²MMBF = million board feet
³at current market prices
Source: C. Grundy

Issue 1: Timber Sale Economics

Alternative A proposes no timber harvest, and thus offers no opportunity for timber-related employment or personal income. The action alternatives would result in timber-related employment opportunities in direct proportion to their total harvest volumes. Alternative B offers the most timber volume and generates the highest potential number of jobs. It also has the lowest average overall cost per MBF. Alternative C offers the least timber volume and generates the lowest potential number of jobs. It also has the highest average overall cost per MBF. Alternative D falls between B and C in all three categories.

Issue 2: Roadless and Road Construction

Alternative B, with 6.2 miles of road construction, one LTF and conventional harvest, has the lowest average overall cost with the greatest overall impact on the "roadless character" of the Cleveland Peninsula. Alternative C, with no new roads, no LTFs and 100 percent uneven-aged management prescriptions, has the highest average cost, with the least impact on the "roadless character" of the peninsula. Alternative D proposes 3.8 miles of low-impact road construction,

one land-to-barge LTF and maintains the uneven-aged prescriptions of Alternative C. Costs fall between those of Alternatives B and C, as do impacts to the "roadless character." Alternative A proposes no new road construction or harvest, maintaining the roadless character of the peninsula.

Alternatives Considered But Not Analyzed in Detail

- An alternative that accesses the project from the Wrangell Ranger District was discussed but dropped from further study. Topographic constraints preclude access from that direction.
- Another alternative that proposed traditional cable harvest and clearcut prescriptions on the portions of Units 1 and 12 accessible by road was also considered. This alternative represents a minor recombination of aspects of Alternatives B and D, and is within the range of alternatives already considered in detail. Economics and environmental impacts fall within the range described in the EIS for Alternatives B and D, and are, overall, close to those shown for Alternative D. On the other hand, as it would involve clearcutting, this alternative raises some of the same public issues as Alternative B. Because it is substantially duplicated by other alternatives and falls within the range already considered and available for selection, there was no need to fully develop this alternative for detailed independent consideration.
- An alternative that proposed harvesting less than 8 MMBF was investigated in direct response to a public comment. This would require using even-aged prescriptions, cable yarding, and road construction in order to make an economically viable offering with the effects being similar to Alternative B. While this would result in smaller volume harvested, the road construction and clearcuts would make this alternative less responsive than the Selected Alternative to the commenter's overall concerns.
- Various combinations of alternatives were also considered, including combining Alternative C, helicopter-logging methods with Alternative B, even-aged prescriptions. Adding clearcuts to Alternative C would not improve the economics since it would require moving large volumes of low-value wood over long distances by helicopter. The Selected Alternative allows some of this low-value wood to remain standing as future stand structure and provides for shorter helicopter yarding distances for the removal of the remainder. This alternative was also less responsive to public concerns over intensive management.
- Another combination alternative considered was Alternative B, even-aged management with a shorter road network, as described in Alternative D. Because a key component of the Purpose and Need for this project was to provide insights into uneven-aged management techniques, this alternative would not meet this and the environmental effects would be similar to Alternative B. Since the effects of these combination alternatives would be someplace in between the effects disclosed for alternatives considered in detail, displaying them separately would not help to sharply define the issues or provide a clear basis for choice among the options, so they were not considered in detail.

Mitigation Measures

The Forest Service uses many mitigation and preventive measures in the planning and implementation of land management activities. The application of these measures begins during the planning and design phases of a project. These measures come from or link to the Forest Plan.

IDT specialists use on-the-ground inventories, computer inventories, and aerial photographs to prepare unit cards for each harvest unit in the unit pool. Cards are also prepared for each

segment of road. Resource specialists include their concerns on the cards and then describe how the concerns can be addressed in the design of each unit and road segment. Resource concerns and mitigation measures will be refined further during final layout, when specialists have an additional opportunity to revise their unit and road card recommendations. Appendices 1 and 2 of the Record of Decision contain a list of mitigation measures used for the Selected Alternative.

Monitoring

Monitoring

Monitoring activities can be divided into three broad categories: Forest Plan monitoring, routine implementation monitoring, and project-specific effectiveness monitoring. The National Forest Management Act requires that national forests monitor and evaluate their Forest Plans (36 CFR 219.11). The Forest Plan (Chapter 6) includes the monitoring and evaluation activities to be conducted as part of Forest Plan implementation.

Routine Implementation Monitoring

Routine implementation monitoring assesses whether the project was implemented as designed and whether or not it complies with the Forest Plan. The unit and road cards (Appendices 1 and 2 of the Record of Decision) will be the basis for determining whether recommendations were implemented for various aspects of the Emerald Bay project.

Routine implementation monitoring is part of the administration of a timber sale contract. The sale administrators and road inspectors ensure that the prescriptions contained on the unit and road cards are incorporated into contract documents and then monitor performance relative to contract requirements. Input by resource staff specialists, such as fisheries biologists, soil scientists, hydrologists and engineers, is regularly requested during this implementation monitoring process. These specialists provide technical advice when questions arise during project implementation.

Tongass staff and representatives from other Federal and State agencies annually conduct an interdisciplinary review of BMP implementation and effectiveness. The results of this and other monitoring are summarized in Tongass National Forest Annual Monitoring and Evaluation Reports. This report provides information about how well the management direction of the Forest is being carried out, and measures the accomplishment of anticipated outputs, activities and effects.

Project-specific Effectiveness Monitoring

Effectiveness monitoring seeks answers about the effectiveness of design features or mitigation measures in protecting natural resources and their beneficial uses. Monitoring records will be kept by the responsible staff. Road use during and following harvest will be monitored to determine whether closure features are sufficient to preclude motorized access, particularly ATV use.

Forest Plan Level Effectiveness Monitoring

Effectiveness monitoring and evaluation is used to determine whether standards and guidelines are achieving objectives, whether objectives are achieving goals, and includes and evaluation on whether there are significant changes in productivity of the land.

Forest Plan Level Validation Monitoring

Validation monitoring and evaluation is used to examine whether the assumptions and predicted effects used to formulate the Forest Plan are accurate.

Findings and Disclosures

Several of the laws and executive orders listed in Chapter 1 require project-specific findings or other disclosures. These are included here, and also in the Record of Decision. They apply to all alternatives considered in detail in this EIS.

National Forest Management Act (NFMA)

All alternatives fully comply with the Forest Plan. All required interagency review has been accomplished. The Forest Plan complies with all resource integration and management requirements of the NFMA.

Tongass Land Management Plan and Alaska Regional Guide

All alternatives are consistent with the Alaska Regional Guide and the revised Forest Plan.

Created Openings Over 100 Acres in Size

No created openings would exceed 100 acres.

Tongass Timber Reform Act

Harvest units were designed with no less than 100-foot buffer zones for all Class I streams and Class II streams which flow directly into Class I streams as required in Section 103 of the TTRA. The actual widths of these buffers follow Forest Plan Riparian Standards and Guidelines that greatly exceed TTRA requirements.

Endangered Species Act

Actions authorized in the action alternatives are not anticipated to have a direct, indirect, or cumulative effect on any threatened or endangered species in the Emerald Bay project area. A Biological Assessment is included in the project planning record.

Bald Eagle Protection Act

Management activities within 330 feet of an eagle nest site are restricted by an Interagency Agreement between the Forest Service and the U.S. Fish and Wildlife Service to facilitate compliance with the Bald Eagle Protection Act. Alternatives D and B includes road and LTF construction within 330 feet of a known bald eagle nest and will require a variance from the U.S. Fish and Wildlife Service.

Clean Water Act

The design of harvest units and roads was guided by standards, guidelines, and direction contained in the Forest Plan, Alaska Regional Guide, Section 404 of the Clean Water Act and applicable Forest Service manuals and handbooks. The ROD Appendices 1 and 2, Unit Design and Road Cards, contain specific details on practices prescribed to prevent or reduce nonpoint sediment sources. Site-specific application and monitoring of BMPs is expected to comply with applicable State Water Quality Standards Regulations. These regulations provide for variances from anti-degradation requirements and water quality criteria. The harvest and road-building operators are responsible for compliance, including obtaining any variance required by the State, and will be monitored for compliance by the Forest Service.

Essential Fish Habitat

The potential effects of the Emerald Bay Timber Sale project on essential fish habitat have been evaluated. For specific information regarding essential fish habitat and the potential impacts refer to the Emerald Bay project area Fisheries Resource Reports and the Fisheries Section of Chapter 3 of the Final EIS. Analysis completed in the cumulative effects sections for fisheries, soils, and water indicate no significant changes to Riparian Management Areas (RMAs) and floodplains due to proposed management activities.

In evaluating the potential effects on essential fish habitat the following factors were considered:

- Forest Plan Standards and Guidelines for process group riparian buffers have been applied in all instances on Class I, II, and III streams;
- the BMPs described in the unit and road cards provide assurance of water quality and aquatic habitat protection for all freshwater streams and marine waters affected by the project;
- the exclusion of harvest on slopes greater than 72 percent. Approximately 15 acres of slopes greater than 72 percent have been field reviewed by professional soil scientists who determined harvest of these slopes can be accomplished with no damage to other resources. These are noted on the specific unit cards; and
- Road construction includes log stringer bridges for all crossings of Class I or II streams.

Based on the above factors, the risk of measurable impact on essential fish habitat has been minimized in the project area. The Forest Service completed essential fish habitat consultation with the National Marine Fisheries Service by including an essential fish habitat assessment in the Draft EIS.

National Historic Preservation Act

Heritage resource surveys of various intensities have been conducted in the project area. The State Historical Preservation Officer has been consulted, and the provisions of 36 CFR, Part 800 are being complied with. Forest Service timber sale contracts contain enforceable measures for protecting any undiscovered heritage resource that might be encountered during sale operations.

Federal Cave Resource Protection Act of 1988

There are no known occurrences of carbonate rock and associated cave resources within the project area. Field reconnaissance identified no areas of concern within the project area.

ANILCA Section 810

Subsistence Evaluation and Findings: A subsistence evaluation was conducted for the four alternatives considered in detail for the Emerald Bay Final EIS, in accordance with Alaska National Interest Lands Conservation Act (ANILCA) Section 810. This evaluation indicates that the potential foreseeable effects from the alternatives in the Emerald Bay project area do not indicate a significant possibility of a significant restriction of subsistence uses for deer, bear, furbearers, marine mammals, waterfowl, salmon, other finfish, shellfish, and other foods such as berries and roots. See the Subsistence section in Chapter 3 of the Final EIS.

Consumers, Civil Rights, Minorities and Women

No negative impacts to the civil rights of individuals or groups, including minorities and women, are anticipated to be associated with this project. Additional information can be found in the Forest Plan Final EIS Chapter 3 and Appendix H.

Executive Order 11988

Executive Order 11988 directs Federal agencies to take action to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. The numerous streams in the project area make it impossible to avoid all floodplains during timber harvest and road construction. The design of the proposed developments and the application of BMPs combine to minimize adverse impacts on floodplains.

Executive Order 11990

Executive Order 11990 requires Federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or modification of wetlands. Alternative C avoids wetlands by proposing no roads and prescribing 100 percent uneven-aged helicopter yarding. Roaded access to the project area cannot avoid wetlands. Techniques and

2 Alternatives

practices required by the Forest Service serve to maintain the wetland attributes including values and functions. Soil moisture regimes and vegetation on some wetlands may be altered in some cases; however, these altered acres would still be classified as wetlands and function as wetlands in the ecosystem. It is estimated there would be only minimal loss of wetlands with the low-impact road and silvicultural prescriptions proposed in Alternative D. Alternative B would have the greatest impact on wetlands.

Executive Order 12898

Executive Order 12898 directs Federal agencies to identify and address the issue of environmental justice, i.e., human health and environmental effects of agency programs that disproportionately impact minority and low-income populations. The Executive Order specifically directs agencies to consider patterns of subsistence hunting and fishing when an agency action may affect fish or wildlife. The issue of environmental justice has been addressed through the environmental analysis. The Emerald Bay project would not have a disproportionate effect on Native or low-income communities, based on: 1) the Socioeconomic Panel's evaluation of the Forest Plan alternatives effect on the community of Meyers Chuck, 2) the Forest Plan determination that Selected Alternative 11 would be similar in its effects to the rated alternatives, 3) the Emerald Bay project falls within the scope of the Forest Plan, and 3) the Emerald Bay project would not effect subsistence resources.

Executive Order 12962

Executive Order 12962 requires Federal agencies to evaluate the effects of proposed activities on aquatic systems and recreational fisheries. The Selected Alternative attempts to minimize the effects upon aquatic systems through project design, watershed assessment, application of Forest Plan Standards and Guidelines, BMPs, and site-specific mitigation measures. Recreational fishing opportunities would remain essentially the same because aquatic habitats are protected through implementation of BMPs and riparian buffers.

The Coastal Zone Management Act

The Coastal Zone Management Act of 1976, as amended, while specifically excluding Federal lands from the coastal zone, requires that a Federal agency's activities be consistent with the enforceable policies of a State's coastal management program to the maximum extent practicable when that agency's activities affect the coastal zone.

The Alaska Coastal Management Program incorporated the Alaska Forest Resources and Practices Act (Forest Practices Act) as the applied standards and guidelines for timber harvesting and processing. The Forest Service Standards and Guidelines, BMPs, and mitigation measures described in the Emerald Bay Final EIS meet or exceed the level of protection provided by the enforceable policies of the State Forest Practices Act.

Additional information requirements were agreed to on March 2, 2000 when an interagency Memorandum of Understanding (MOU) was signed.

Based on the analysis in the Final EIS, review of the Alaska Forest Practices Act, and comments from State agencies on the Draft EIS, the Forest Service determined that the Emerald Bay project is consistent to the maximum extent practicable with the enforceable policies of the Alaska Coastal Management Program. The State has objected to this determination.

Federal and State Permits

Federal and State permits necessary to implement the authorized activities are listed at the end of Chapter 1 in the Final EIS and on page R-17 of the Record of Decision.

Additional Applicable Policy and Legislation

Transportation Policy

As it stands today, the Tongass National Forest has prepared the Emerald Bay Environmental Impact Statement to be consistent with the Forest Service Transportation; Final Administrative Policy (Transportation Policy). Among other direction, the Transportation Policy requires that an area-specific roads analysis be completed and a determination of need for amendment or revision of the Forest Plan be made if any roads are to be constructed or reconstructed in inventoried roadless or contiguous unroaded areas, until a Forest-wide roads analysis has been completed (FSM 7712.16(c)). This analysis and determination has been made for the Emerald Bay project and can be found in the Planning Record and Record of Decision. A separate interim directive (7710-2001-1) extends the deadlines for requiring roads analysis for all road management decisions to January 12, 2002 (FSM 7712.15), but does not apply to FSM 7712.16.

The Roadless Area Conservation Rule

The Forest Service is reevaluating its Roadless Area Conservation Rule and is currently enjoined from implementing all aspects of it by the US District Court, District of Idaho. The Emerald Bay Draft EIS was issued prior to the deadline in the Roadless Rule, so this project could move forward regardless of the Roadless Rule status.

Tongass Land Management Plan Litigation

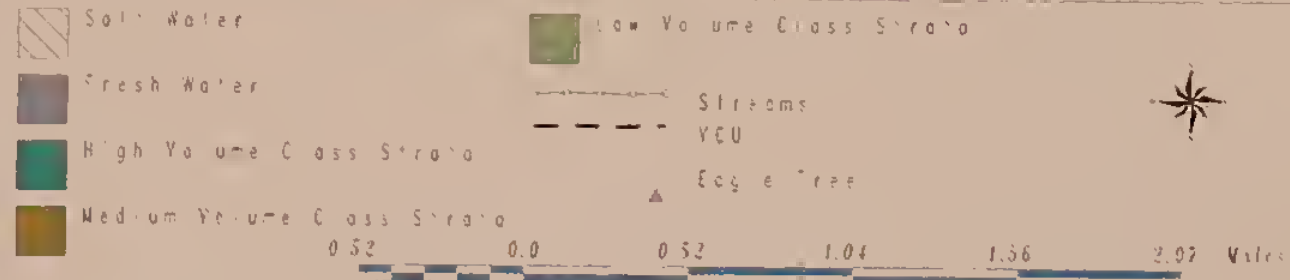
In *Sierra Club v. Lyons* (J00-0009 (CV)), the US District Court, District of Alaska enjoined the Tongass National Forest from taking any action to change the wilderness character of any eligible roadless area until a supplemental environmental impact statement evaluating wilderness recommendations for roadless areas has been prepared. On May 23, 2001, the Judge temporarily lifted this injunction pending a hearing and further order from the Court.

In *AFA v. USDA*, the US District Court, District of Alaska vacated the 1999 Record of Decision for the Tongass Forest Plan and upheld the 1997 Record of Decision. The Emerald Bay project is consistent with the 1997 Record of Decision for the Revised Tongass Land Management Plan.

National Forest System Land and Resource Management Planning Rule

This final rule, an update to 36 CFR Parts 217 and 219, became effective November 9, 2000; however, it is currently being revised. Implementation is scheduled to begin in May 2002. It describes the framework for National Forest System land and natural resource planning, reaffirms sustainability as the overall goal for National Forest System planning and management, establishes requirements for the implementation, monitoring evaluation and amendment of land and resource management plans, and guides selection and implementation of site specific actions. Although this rule is intended to guide Forest-level planning, the Selected Alternative is not inconsistent with its requirements for project-level planning.

ALT A EMERALD BAY FINAL EIS



ALT B EMERALD BAY FINAL EIS



- Salt Water
- Fresh Water
- Harvest Units

- Proposed Roads
- Streams
- Units
- VCL



Log Transfer Facility

Eagle Tree



0.52 0.0 0.52 1.04 1.56 2.07 Miles

ALT C EMERALD BAY FINAL EIS



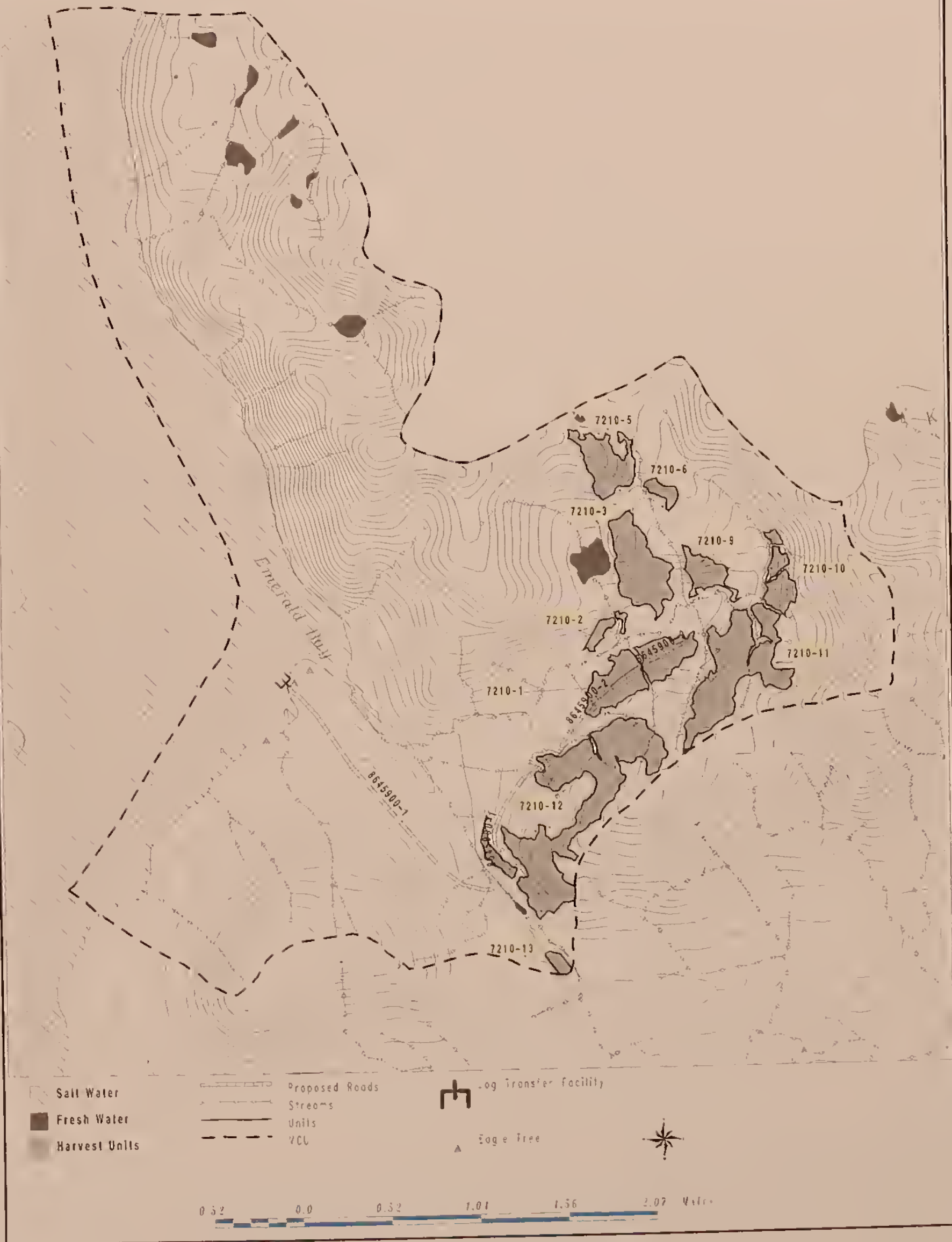
- Sal^t Water
- Fresh Water
- Harvest Units

- Proposed Roads
- Streams
- Units
- VCL

- Log Transfer Facility
- Eagle Tree



ALT D Emerald Bay Final EIS



Chapter 3

Environment and Effects

THE UNIVERSITY OF CHICAGO

PHILOSOPHY DEPARTMENT

Chapter 3

Environment and Effects

Introduction

This chapter provides information concerning the existing environment of the Emerald Bay project area, and the potential consequences to that environment. It also presents the summary of scientific data and analytical basis for the comparison of alternatives presented in Chapter 2. Each resource potentially affected by the Proposed Action or alternatives is described by its current condition and uses.

Following each resource description is a discussion of the potential effects (environmental consequences) to the resource associated with the implementation of each alternative. All significant or potentially significant effects, including direct, indirect and cumulative effects, are disclosed. Effects are quantified where possible, and qualitative discussions are also included. The means by which potential adverse effects would be reduced or mitigated are described.

The discussions of resources and potential effects take advantage of existing information included in the Forest Plan EIS, other project EISs, project-specific resource reports and related information, and other sources as indicated. Where applicable, such information is briefly summarized and referenced to minimize duplication. The planning record for the Emerald Bay project includes all project-specific information, including resource reports and other results of field investigations. The record also contains information resulting from public involvement efforts. The planning record is located at the Ketchikan-Misty Fiords Ranger District Office in Ketchikan, Alaska, and is available for review during regular business hours. Information from the record is available upon request.

Land Divisions

The land area of the Tongass National Forest has been divided in several ways to describe the different resources and allow analysis of how they may be affected by Forest Plan and project-level decisions. These divisions vary by resource since the relationship of each resource to geographic conditions and zones also varies. The allocation of Forest Plan land use designations (discussed in Chapter 1) is one such division. Two divisions important for the present effects analysis are described briefly here.

Value Comparison Units (VCUs)

These are distinct geographic areas, each encompassing a drainage basin containing one or more large stream systems. The boundaries usually follow major watershed divides. The Emerald Bay project area consists of one VCU, number 7210, as discussed in Chapter 1. Chapter 1 also includes a map showing the location of VCU 7210.

3 Environment and Effects

Wildlife Analysis Areas (WAAs)

These are Forest Service land divisions that correspond to the "Minor Harvest Areas" used by the Alaska Department of Fish and Game. There are approximately 190 WAAs that apply to the Tongass National Forest. WAA 1817 corresponds to the Emerald Bay project area. Information estimated by WAA is used in the wildlife and subsistence analysis.

Analyzing Effects

Environmental consequences are the effects of implementing an alternative on the physical, biological, social and economic environment. The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) includes a number of specific categories to use for the analysis of environmental consequences. Several are applicable to the analysis of the proposed project and alternatives, and form the basis of much of the analysis that follows. They are explained briefly here.

Direct, Indirect and Cumulative Effects

Direct environmental effects are those occurring at the same time and place as the initial cause or action. Indirect effects are those that occur later in time or are spatially removed from the activity, but would be significant in the foreseeable future. Cumulative effects result from incremental effects of actions, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time. The scope by which effects are measured is not necessarily limited to the project area. The geographical area within which effects of activity are analyzed is identified within the applicable resource section.

Past and Present Actions

There has been little past activity within the project area. Fourteen acres of the medium Old-growth Reserve were harvested in the late 1930s. Historically, single-tree beach harvest has occurred in scattered locations within the southern portion of the Cleveland Peninsula.

The Frosty Bay Timber Sale, which was harvested in 1993 and is located 13 miles north of the Emerald Bay project area, is in a separate watershed. Frosty Bay is the closest ground-disturbing activity that has occurred to the project area. It harvested 1,184 acres and built 12 miles of road.

A large parcel of private land is located south of Meyers Chuck. This land could be developed for timber production in the future. The landowner has expressed interest in exchanging this parcel with other National Forest System lands. If that were to happen, management of the parcel would be consistent with the Semi-Remote Recreation LUD adjacent to it.

The effects of these actions on resources within the project area are expected to be minor.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include "reasonably foreseeable future actions" (40 CFR 1508.7). For the Emerald Bay project action alternatives, individual sale offerings are scheduled for completion by 2006.

Potential additional projects on National Forest System land in the general vicinity of the Emerald Bay project include:

- The Southeast Transportation Plan's proposed road across the Cleveland Peninsula
- The proposed Swan-Tyee Powerline, which is 19 miles north of the project area
- The Canal-Hoya Timber Sale, 22 miles north
- The Kuakan Timber Sale, located 10 miles to the north
- The Pt. Warde/Sunny Bay Timber Sales located 3 to 10 miles north
- The Whale Tail Timber Sale located on Etolin Island, 19 miles to the northwest

- The Port Stewart Timber Sale, located 10 miles to the southeast (not on current 10-year sale plan)
- The Vixen Inlet Timber Sales located 5 miles south (not on current 10-year sale plan).

The effects of the activities associated with the Emerald Bay project are not expected to add to the effects of, or be affected by, these projects. With the exception of the Pt. Warde/Sunny Bay Sale, which is not scheduled until at least 2005, and the Vixen Inlet Timber Sale, which is not yet on the 10-year sale plan, all of these projects are separated from the Emerald Bay project area by topographical barriers and by a distance of at least 10 miles. There is no non-National Forest System land within the vicinity of Emerald Bay.

Unavoidable Adverse Effects

Implementation of any action alternative would cause some adverse environmental effects that cannot be effectively mitigated or avoided. Unavoidable adverse effects often result from managing the land for one resource at the expense of the use or condition of other resources. Many adverse effects can be reduced, mitigated, or avoided by limiting the extent or duration of effects. The interdisciplinary procedure used to identify specific harvest units and roads was designed to eliminate or lessen the significant adverse consequences. The application of Forest Plan Standards and Guidelines, Best Management Practices, project-specific mitigation measures, and monitoring are all intended to further limit the extent, severity, and duration of potential effects. Such measures are discussed throughout this chapter. Regardless of the use of these measures, some adverse effects will occur. The purpose of this chapter is to fully disclose these effects.

Short-term Use and Long-term Productivity

Short-term uses and their effects are those that occur annually or within the first few years of project implementation. Long-term productivity refers to the capability of the land and resources to continue producing goods and services long after the project has been implemented. Under the Multiple-Use Sustained Yield Act, and the National Forest Management Act, all renewable resources are to be managed in such a way that they are available for future generations. The harvesting and use of standing timber can be considered a short-term use of a renewable resource. As a renewable resource, trees can be reestablished and grown again if the long-term productivity of the land is maintained. This long-term productivity is maintained through the application of the resource protection measures just described, in particular those applying to the soil and water resources. These are also discussed throughout the chapter.

Irreversible and Irretrievable Commitments

Irreversible commitments are decisions affecting non-renewable resources such as soils, wetlands, unroaded areas, and heritage resources. Such commitments are considered irreversible because the resource has deteriorated to the point that renewal can occur only over a long period of time or at a great expense, or because the resource has been destroyed or removed. The construction of roads for timber harvesting is an irreversible action because of the time it takes for a constructed road to revert to natural conditions. The conversion of old-growth forest to a managed second-growth stand may also be considered an irreversible commitment. Irretrievable commitments represent opportunities foregone for the period during which resource use or production cannot be realized. Such decisions are reversible, but the production opportunities foregone are irretrievable. As an example, deferring timber harvest at this time in certain areas due to resource concerns or economics would be an irretrievable commitment of timber volume otherwise obtainable. The commitment is irretrievable rather than irreversible, because future entries could harvest those areas if they are still part of the suitable timber base. Irreversible and irretrievable commitments are not usually identified as such in the resource discussion of this chapter.

3 Environment and Effects

Available Information

Much of the Tongass National Forest resource data resides in an electronic database formatted for a geographic information system (GIS). GIS software is used to assist in the analysis of these data. GIS data is available in tabular (numerical) format, and as plots displaying data in map format. For this EIS, the maps and most of the numerical analysis are based on updated GIS resource data.

There is less-than-complete knowledge about many of the relationships and conditions of wildlife, fish, forests, jobs and communities. The ecology, inventory and management of a large forest area are complex and developing sciences. The biology of wildlife species prompts questions about population dynamics and habitat relationships. The interaction of resource supply, the economy, and communities is the subject matter of an inexact science. However, the basic data and central relationships are sufficiently well established in the respective sciences for the deciding official to make a reasoned choice between the alternatives, and to adequately assess and disclose the possible adverse environmental consequences.

Other Resources

Several resources and uses of the project area are likely to remain unaffected by the Proposed Action or alternatives, or would not be affected to a significant degree. Resources or uses for which no measurable effects were identified are discussed briefly here.

Air Quality

All of the action alternatives would have limited, short-term effects on ambient air quality. Such effects, in the form of vehicle emissions and dust, are likely to be indistinguishable from other local sources of airborne particulates, including other motor vehicle emissions, dust from road construction and motor vehicle traffic, residential and commercial heating sources, marine traffic, and emissions from burning at sawmills. The action alternatives could result in short-term supplies of raw wood products to local mills. It is the responsibility of the mill owner or sortyard operator to ensure that mill emissions are within legal limits.

Facilities

There are no logging camps or Forest Service administrative sites in the Emerald Bay project area. The Ketchikan-Misty Fjords Ranger District office is located approximately 40 miles south of the project area in Ketchikan, Alaska.

Land Status

Under the Alaska Statehood Act of 1959, the State of Alaska is entitled to a certain amount of Federal land. The State was also allowed to identify for selection more acreage than would ultimately be conveyed to State ownership. The Alaska Native Claims Settlement Act granted Alaska Native corporations similar selection rights. There are no State or Alaska Native land selections or claims within the project area.

Minerals

There are no known mineral occurrences of commercial value within the Emerald Bay project area. Bureau of Land Management records indicate no mining claims or patented mining claim groups within the Emerald Bay project area.

The Proposed Action would have no direct or indirect impact on mineral resources. In general, the project could affect mining activities only by providing easier access for mapping and surveying due to new road construction in less developed or underdeveloped areas. Geologic mapping could also be enhanced by increased exposure due to road construction and quarry development.

Plans of Other Agencies

The CEQ regulations implementing NEPA require a determination of possible conflicts between the Proposed Action and the objectives of other Federal, State, and local land use plans, policies, and controls for the area. The major land-use regulations of concern are Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA), the Coastal Zone Management Act (CZMA), and the State of Alaska's Forest Practices Act. ANILCA Section

810 requirements pertain to subsistence; these are discussed in the Subsistence section of this chapter.

The CZMA was passed by Congress in 1976 and amended in 1990. This law requires Federal agencies conducting activities or undertaking development affecting the coastal zone to ensure that the activities or developments are consistent with approved State coastal management programs to the maximum extent practicable. The State of Alaska passed the Alaska Coastal Management Act in 1977, to establish a program that meets the requirements of the CZMA. In 1990 the State passed a revised Alaska Forest Practices Act. For Federal timber sales, the Forest Practices Act provides the standards to be used for a determination of consistency with the Alaska Coastal Management Act. It also provides specific stream buffer requirements.

The Forest Service has evaluated the alternatives to ensure that the activities and developments affecting the coastal zone are consistent with approved coastal management programs to the maximum extent practicable. The Forest Plan Standards and Guidelines, and management practices incorporated into the Emerald Bay project meet or exceed those indicated by the Alaska Coastal Management Act and the Alaska Forest Practices Act. The layout of all proposed harvest units would comply with Forest Plan Standards and Guidelines for riparian management areas, which meet or exceed the stream buffer requirements in the Forest Practices Act. The Forest Service's finding and the State's response are described in detail in Chapter 2.

Biodiversity and Old-growth

Affected Environment

Biological Diversity

National Forest Management Act (NFMA) regulations (36 CFR 219) define diversity as the distribution and abundance of different plant and animal communities and species. Biological diversity, or biodiversity, refers not only to the variety of organisms in an area; it also includes their genetic composition, the complex pathways that link organisms to one another and to the environment, and the processes that sustain the whole system. Biodiversity can be evaluated at different scales, ranging from genetic and species diversity to landscape diversity.

The risk of genetic and species loss is higher if the structure, composition, or function of habitats are compromised. An example of such a compromise might be fragmentation of large blocks of suitable habitat into smaller isolated blocks that separate small populations from each other. In managing forest ecosystems, biodiversity is evaluated at larger scales because the maintenance of functioning ecosystems would better conserve the species associated with them.

The connectivity, or habitat corridors, between habitat blocks in a landscape can be very important for maintaining diversity (Noss 1983). Corridors can function in different ways, depending on width and other characteristics. Corridor width can be important: some "interior species" (species that do not inhabit the outer edges of old-growth forests) will not live in or even migrate through extensive lengths of unsuitable habitat (Forman and Gordon 1981).

100-year Viability Analysis

Project Level Viability Analysis

The Forest Plan Final EIS conducted viability analysis and concluded that the Forest Plan will provide reasonable assurance of maintaining viable and well-distributed populations of wildlife across the Tongass National Forest for 100 years. This analysis and conclusion incorporated the assumption of full implementation of the Forest Plan for 10 decades. Therefore, any project that is consistent with the Forest Plan is a subset of the Forest-wide analysis and will, by definition, also provide reasonable assurance of maintaining viable wildlife populations.

This project is consistent with the Forest Plan Land Use Designations and Standards and Guidelines. Viability analysis is not required at the project level. New information has not emerged since the Forest Plan revision was completed that would cast doubt on or significantly alter the original analysis. Within the 5-year timeframe of the mandated Forest Plan review and the commitment to review the old-growth strategy, new information should be available to conduct the review of population viability. During that review, conclusions may change. However, it is unlikely that before then, e.g. on an annual basis, any new information would be significant enough to modify the 100-year viability analysis conclusion.

Old-growth Forest

Old-growth forest contains trees of many ages, sizes, and conditions, including dead standing trees (snags) and trees with dead tops. Tree establishment largely depends on large woody debris (logs and stumps) (Harmon 1986, Harmon and Franklin 1989) and gap formation (Alaback 1988). Woody debris provides micro-sites for seedlings to grow on, and gaps (openings) created by windthrow or other disturbances allow light to penetrate to the forest floor. The process of trees dying and being replaced is continuous; in any one year, a portion of the trees in individual stands is likely to blow down (Harris 1989). Generally, the forest is a mosaic of older and younger trees, dynamically changing yet remaining stable as a forested ecosystem (Bormann and Likens 1979, Alaback 1988, Schoen et al. 1988, Franklin 1990).

Old-growth forest can be an important source of valuable forest products. All action alternatives propose harvesting old-growth forest. Old-growth forests are also important for

aesthetic and heritage purposes. Large trees, characteristic of many old-growth stands, have become symbols of a “pristine” landscape.

Old-growth forest is also important as wildlife habitat for old-growth associated species such as Sitka black-tailed deer, marten, black bears, Vancouver Canada geese, and cavity or snag-dependent species such as flying squirrels, woodpeckers, and owls. The combination of a dense canopy with scattered small openings (typically 20 to 40 feet across) allows forage to grow under the openings, while the large limbs within the canopy intercept enough snowfall to provide winter food and thermal cover for deer and other species. The large, dense stems also provide some measure of thermal insulation in the winter. Large dead or defective trees provide nesting sites for marten, owls, eagles, wrens and chickadees, as well as feeding sites for woodpeckers, sapsuckers, brown creepers and others.

The value of old-growth forest for wildlife habitat transcends individual stands. Large, contiguous, unfragmented blocks of old-growth forest are important to forest interior species. Large old-growth blocks provide expansive hunting territories and protection from predators, and promote genetic mixing among populations that would be less likely to breed if they were spatially separated by forest fragmentation. Deer use these large old-growth blocks for migration routes between winter and summer ranges.

Within the project area, approximately 14 acres of selective timber harvest occurred about 65 years ago, near the beach in Emerald Bay. Currently, the forests on the project area have a relatively (naturally) fragmented distribution. The majority (74 percent) of the productive old growth and the largest forest blocks in the project area are in the medium Old-growth Reserve (Fig 1-2, page 1-7).

Viable Populations and Old-growth

The NFMA regulations also include the concept of wildlife (vertebrate) species viability, requiring that fish and wildlife habitats be managed to maintain viable populations of species in the planning area (national forest). A viable population is defined as one having “the estimated numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area” (36 CFR 219.19). Wildlife habitat planning and management for viable populations is carried out in the context of overall multiple-use objectives.

Viability is discussed here rather than in the Fisheries Resources and Wildlife sections due to the key role that old-growth forest habitat plays in maintaining viability across the Tongass National Forest. The Forest Plan includes, as the foundation of its viability strategy, a forest-wide system of Old-growth Habitat Reserves (blocks) that maintain the integrity of the old-growth ecosystem.

Under the Forest Plan, project areas are not expected to independently maintain viable populations, but do need to consider project-level contributions to the Forest-wide strategy. This includes maintaining the integrity of Old-growth Habitat Reserves, maintaining other components of the overall strategy (such as riparian management areas, the beach and estuary fringe, and species-specific habitats), and considering additional old-growth habitat and corridor needs within the project area.

The Emerald Bay project area (VCU 7210) contains part of a medium Old-growth Habitat Reserve (Old-growth Habitat LUD). This reserve also occurs in VCUs 7200 and 7220, and is adjacent to a small Old-growth Reserve in VCU 7220, making a continuous habitat reserve of 21,250 acres. The medium Old-growth Reserve is 12,439 acres in size, and contains 6,648 acres of productive old-growth forest with 6,402 acres of high-volume old growth. (Details of the small reserve in VCU 7220 are displayed in the Environmental Consequences portion of this section.) This medium Old-growth Reserve makes up 67 percent of the project area (Figure 1-2, Table Old Growth 1). The project area is bounded on the south by the remainder of this medium reserve and a portion of the small reserve in VCU 7220. The remainder of this

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small reserve bounds the eastern boundary of the project area. On the north, the project area is bounded by lands in the Timber Production and Modified Landscape land use designations.

The Forest Plan allows boundary adjustments or relocations (within a VCU) of small reserves, as long as the habitat criteria are met. No changes are proposed to small Old-growth Habitat Reserves for the Emerald Bay project.

Table Old Growth-1
Old-Growth Habitat Reserve Acreage in Emerald Bay Project Area

VCU	VCU Acres	Old-growth Habitat Acres	POG ¹ Acres
7210	7,845	5,259	3,913

¹POG = Productive Old Growth
Source: Forest Service GIS

The maintenance of habitat corridors can be important to minimize isolation and decline of wildlife species associated with the old-growth blocks (Harris 1984, 1985; Hunter 1990). Riparian areas, the beach fringe, estuaries and other areas (including stands deemed inoperable for timber harvest because of unstable soils, steep slopes, economic isolation, or other factors) can all provide connectivity between old-growth blocks in addition to Old-growth Habitat Reserves. Very limited timber harvest (14 acres) has occurred in the past within the beach, estuary, and riparian buffers in the project area. There are no roads in the project area.

Environmental Consequences

Effects of Alternatives on Old- growth Forest and Biodiversity

Following clearcut logging of old-growth forest, the stands that subsequently develop are even-aged (Harris and Farr 1974) and tend to contain a higher percentage of Sitka spruce and a lower percentage of cedars. Clearcutting differs from natural disturbances in that it represents a large-scale change (up to 100 acres, typically) rather than dispersed small (1 to 20 acres, typically) partial blowdown patches. It also differs in that nearly all trees are felled, whereas in natural disturbances many trees remain standing or partially standing (Hansen et al. 1991).

Following selection harvests, stands maintain many of their old-growth characteristics. A minimum of three age-classes remains spread evenly over diameter classes. Selection cutting more reflects the natural gap-dominated disturbance typical of old-growth forests.

Direct Effects

Under Alternative B, 421 acres would be harvested by clearcut and 178 acres by individual tree selection methods (Table Old Growth-2). The proposed clearcut harvest will differ somewhat from traditional clearcutting because 10-20 percent of the original stand structure of each unit that contains high-value marten habitat will be retained. The retained trees will most likely be in clumps or "islands" within a unit, or may be more evenly spaced. In either case, the actual opening created will be smaller than the unit size indicates, and mature trees will remain as part of the unit.

Alternative C proposes no clearcutting. All 625 acres would be managed on an uneven-aged basis using selection harvest systems.

Alternative D would harvest the same number of acres, using the same silvicultural systems as Alternative C. Helicopter yarding would be used.

Table Old Growth-2¹
Emerald Bay Harvest Acreage and Unit Size by Alternative

Alternative	Number of Units	Average Unit Size (acres)	Clearcut (acres)	Selection Harvest (acres)
A	0	0	0	0
B	8	75	421	178
C	10	63	0	625
D	10	63	0	625

¹Differences between numbers displayed here and those displayed in the Draft EIS are due to additional field information collected subsequent to Draft EIS preparation
Source: Forest Service GIS

Effects Related to Viable Populations and Old Growth

The Forest Plan, as previously discussed, includes a Forest-wide habitat conservation strategy designed to provide reasonable assurance of maintaining adequate habitat to maintain viable fish and wildlife populations. For Emerald Bay, the medium Old-growth Habitat Reserve, which occurs within and to the south of the project area, is the main component of the Forest-wide habitat conservation system. In addition, all applicable Forest Plan Standards and Guidelines that are also integral parts of the strategy - such as Riparian Management Areas, beach fringe protection, landscape connectivity, and marten guidelines - are fully incorporated into the Emerald Bay action alternatives.

The Forest Plan includes specific criteria for designing and locating small, medium and large Old-growth Habitat Reserves (Forest Plan, Appendix K). The small Old-growth Habitat Reserves adjacent to the project area were reviewed during interagency and interdisciplinary meetings. No changes are proposed for the small reserves in VCUs 5260 or 7220 (Table Old Growth-3).

Table Old Growth-3
Comparison of Mapped Small Old-growth Habitat Reserves

	VCU 5260	VCU 7220
Small Reserve Acres:		
Forest Plan (1997)	3,574	8,811
Required (min.)	2,817	5,050
Proposed Change	none	none
POG ¹ Acres:		
Forest Plan (1997)	1,907	2,964
Required (min.)	1,408	2,525
Proposed Change	none	none

¹POG = Productive Old Growth
Source: Forest Service GIS

Alternative A is the No-action Alternative and would result in no harvest. Under Alternative B, 421 acres would be clearcut harvested and 178 acres would be selectively harvested. Alternative B would also construct 6.2 miles of roads and creates eight openings averaging 75 acres in size. Under Alternatives C and D, all 625 acres would be selectively harvested. The selection prescriptions target removal of 50 percent of the original basal area, spread as evenly as possible over all diameter classes every 50-100 years. Alternatives C and D propose 10 units, with no openings over 2 acres in size. Of the 599 acres of productive old-growth forest

Comparison of Alternatives

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(POG) proposed for harvest in Alternative B, approximately 50 percent is considered to be highly productive or high-value old growth with 70 percent of the harvest scheduling 100 percent removal. In Alternatives C and D, of the 625 acres of POG within harvest units, 44 percent is considered to be highly productive. The uneven-aged prescriptions call for 50 percent removal.

Indirect and Cumulative Effects

Table Old Growth-4 displays the amount of old-growth forest harvested to date within the project area, and gives an estimate of the productive old growth originally existing there. Comparing these two figures gives an indication of the cumulative effect (as a reduction) on the old-growth forest resource in the project area so far. Table Old Growth-4 displays the cumulative change (reduction) in project area productive old-growth forest, as a percentage of that existing in 1954. Included are both the amount of POG harvested to date (which is the same for all alternatives), and the amount remaining following additional harvest under each Emerald Bay action alternative. It should be noted that the figures displayed for both Alternatives C and D assume clearcut harvest methods. Since both of these alternatives propose uneven-aged prescriptions, the effects to POG will be less. The areas proposed for group selection prescriptions will maintain up to 50 percent of the matrix forest between groups.

Table Old Growth-4
Acres of Productive Old-growth (POG) Forest in the Emerald Bay Project Area in 1954, 1998, and Estimated by Alternative for Post Project.

	Alternative			
	A	B ¹	C ²	D ²
1954 acres	5,274	5,274	5,274	5,274
1998 acres	5,260	5,260	5,260	5,260
Post Project Acres ³	5,260	4,601	4,635	4,615
Percent change	0	-14	-14	-15

¹Alternative B is 70% clear-cut harvest.

²Alternatives C and D are 100% partial harvests.

³Post project acres subtracts all harvest unit acres and all road right-of-way acres (20 ac in Alt D, 60 in Alt B)

Source: Forest Service GIS

Indirect and Cumulative Effects of Roads

Alternatives A and C do not propose any road building. Under Alternative B, 6.2 miles of road would be constructed. Under Alternative D, 3.8 miles of road would be constructed. Both roaded alternatives would construct 2.2 miles of road through the medium Old-growth Habitat Reserve (OGR). Portions of this section of the road would also pass through an estuary and a bald eagle nest tree buffer. Forest Plan Standards and Guidelines allow for road construction through OGRs and estuary buffers if other alternatives are not feasible. The isolated nature of the Emerald Bay project area precludes other means of roaded access. Roads constructed through the Old-growth Reserve as part of Alternative D would be built to standards that minimize impacts to resources. This would include narrow rights-of-way, out-sloping, and log-stringer bridges (as opposed to culverts). Drainage structures would be removed after silvicultural activities are complete, and further out-sloping and seeding would be applied.

The portion of the road within the OGR (Alternatives B and D) and its right-of-way would cover approximately 14 of the 5,259 acres of the OGR within the project area. The road and its right-of-way would remove approximately 5 of 3,913 acres of the POG within the OGR.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include “reasonably foreseeable future actions” (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to occur by 2006. We do not anticipate another timber sale in the Emerald Bay project area for at least 50 years, but even if all the remaining available productive old growth is harvested during the next 5 decades, the productive old-growth forest in the project area would be reduced to 82 percent of what existed in 1954 (see Table Old Growth-4 on page 3-10 and Table Wildlife-4 on page 3-68).

Alternatives C and D would maintain uneven-aged stand structures retaining a minimum of 50 percent of their original basal area.

Other activities planned on National Forest System land in the vicinity of the Emerald Bay project area are not expected to affect or be affected by activities associated with the Emerald Bay project and are discussed in the Introduction to this chapter.

Fisheries Resources

The following descriptions and analysis are summarized from the Emerald Bay planning record documents: the Fish and Water Resource Report (1999), and the Soils and Water report for the Emerald Bay project area (1999). A related analysis of fisheries is contained in the Forest Plan, Chapter 3. Applicable fisheries and riparian direction is contained in the Forest Plan, Chapter 4 and Appendices D and J. The unit and road cards contain site-specific implementation requirements and mitigation measures.

Affected Environment

Fish Species and Uses

Project area streams contain important anadromous and resident fish habitats. The streams support three species of anadromous salmon (pink, chum, and coho), as well as resident coastal cutthroat trout, and Dolly Varden char. King salmon are present in the inlets and bays of the project area, but do not spawn in project area streams. Salmon, trout and char are important to the subsistence, sport and commercial fisheries of the region, and are a major food source for many wildlife species when present. Alaska Department of Fish and Game does not issue personal use permits for the fresh waters of the project area. Emerald Creek contributes to the commercial fisheries of Southeast Alaska.

Fish Habitat

Fish habitat is described by watershed, stream class, and process group (stream channel typing). Floodplains, the most important process group relative to fish habitat, are discussed in the Water section of this chapter. Watersheds are areas that collect and discharge runoff through a given point on a stream. The Emerald Bay project area includes two separate watersheds, Wasta (C72C) and Emerald Bay (C70A). Over 75 percent of the project area is located in the Emerald Bay watershed. There are less than 20 acres of lake habitat in the Emerald Bay project area. The 18-acre lake in the Birch Creek sub-basin of the Emerald Bay watershed has an elevation of 950 feet and does not contain fish.

Fish habitat was analyzed at the watershed scale using estimates of fish habitat availability (miles of fish-bearing streams in a watershed) and capability (ability by a watershed to produce smolts). Estimates were compared against data collected for similar-sized watersheds across the Cleveland Peninsula (at least third-order and greater than 1 square mile). Emerald Bay fish habitat availability estimates were slightly above average. Potential capability to produce smolts was slightly above average for salmon, and slightly below average for Dolly Varden. The fish habitat is slightly above average when compared against similar watersheds across the Cleveland Peninsula landscape. On the Cleveland Peninsula, the majority of salmonid habitat and salmonid production occurs in the Vixen, Port Stewart, Black Bear, and Wasta watersheds.

The Emerald Bay watershed was divided into four sub-basins for sediment risk analysis. The most sensitive resident salmonid habitat in the watershed is located in sub-basin S01 (upper Birch Creek) where four Class III tributaries join an unstable palustrine complex at the upper mainstem floodplain.

The Emerald Bay project area encompasses one sub-basin of the Wasta drainage. The single Wasta sub-basin located within the project area is part of a low elevation divide and is relatively flat. A small pond (less than 3 acres) and a narrow (5 foot bed-width) Class II stream drain this sub-basin. Because any proposed harvest would fully implement standard and guideline buffers, and because the sub-basin has low relief, sediment risk to fish habitat and water quality in the Wasta watershed is expected to be negligible.

There are 15.3 miles of streams in the project area, with 14.7 miles of streams in the Emerald Bay watershed (see Table Fisheries-1). Streams are shown on the unit cards as Class I, II, or III streams.

Table Fisheries-1
Number of Stream Miles by Stream Class in Emerald Bay Watershed

Class I	Class II	Class III	Class IV	Total
2.5	3.5	4.6	4.1	14.7

Source: Forest Service GIS

Existing Harvested Areas and Road Crossings

Timber harvest and roads are typically the forest management activities with the highest potential to adversely affect fisheries habitats. The Emerald Bay project area has had 14 acres of selective timber harvest in the past. The harvest occurred approximately 60 years ago at the mouth of Emerald Creek (harvest age was determined by increment boring). Primarily Sitka spruce was removed from the floodplain (FP4 channel-type) just above the estuary. Harvest did not extend past the confluence of Emerald and Birch Creeks. The majority of the western hemlock was left standing. During a reconnaissance in April 1998, large woody debris and pools were present in the channel, with several wood pieces spanning the creek and checking substrate. Along the streams where harvest occurred, numerous large (diameter equal to or greater than 20 inches breast height (DBH)) trees are growing along the stream. Many of the trees are hemlocks that are hundreds of years old that were left standing when the riparian area was selectively harvested. In addition to the hemlock and relatively large alder (14" DBH), Sitka spruce trees which have regenerated naturally are expressing dominance. Many of these spruce have DBHs in excess of 15 inches as well. To the untrained eye, the riparian corridor appears to be multi-aged old growth. Opportunities to enhance this stream reach were investigated and determined to be unnecessary due to the abundant supply of large living trees along the stream bank available for natural recruitment. There are also several down trees within the stream that are creating quality fish spawning and rearing habitat. The floodplain along the harvested section of Emerald Creek was determined to exist within the natural range of conditions found along streams that have not been harvested.

Environmental Consequences

Timber harvest activities have the potential to affect fisheries resources by altering fish habitat. Logging and associated road building can affect fisheries resources by changing the delivery of water, sediment, and input of large woody debris into the stream system. Changes of the input and transport of these components can adversely affect the capability of the stream habitat to produce fish. The closer the timber harvest activities are to a stream, the higher the risk of adversely affecting fish habitat.

The National Forest Management Act implementing regulations prohibit any activities near streams that would seriously and adversely affect fish habitat (36 CFR 219.27 (e)). In addition, the Tongass Timber Reform Act of 1990 requires a no-harvest buffer zone of at least 100 feet on each side of all Class I streams, and all Class II streams that flow directly into Class I streams (Section 103 (a)).

The Forest Plan Riparian Standards and Guidelines (S&Gs) incorporate this direction and provide additional protections. The Riparian S&Gs require no-harvest buffers along all Class I, II and III streams, based on stream process groups and a defined Riparian Management Area, and provide direction for management beyond the no-harvest zone to provide for a reasonable assurance of windfirmness. Riparian Standards and Guidelines were specifically developed through a collaborative effort involving lead watershed and fisheries scientists from Federal

Fish Habitat Protection Standards

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(management and research) and State (Alaska Dept. of Fish and Game; Alaska Dept. of Environmental Conservation) agencies. They are the measures established to avoid any additional impacts to aquatic resources from management activities and can only be modified through an approved, site-specific watershed analysis. The standards and guidelines and other direction of the Forest Plan meet or exceed all of those recommendations by Anadromous Fish Habitat Assessment (AFHA), and include some additional protections. These standards and guidelines are sufficient to protect fish habitat and provide for sport and commercial fisheries and subsistence.

Finally, the Best Management Practices (BMPs), designed to ensure compliance with the Clean Water Act, help protect riparian habitat on streams or portions of streams not protected by buffer zones. In order to minimize the potential for adverse impacts on soil and water resources by management activities, BMPs are used to directly or indirectly protect water quality from non-point source pollution. This is typically done through site-specific prescriptions.

Results of the Fish and Water Resource Report mentioned previously were used in the design of harvest and the inclusion of additional mitigation measures. Areas where high risk was identified or indicated were avoided. If additional streams are found during project layout, the same standards and guidelines would be applied. Future monitoring would focus on the application and adequacy of buffer prescriptions.

A Management Indicator Species (MIS) monitoring site for resident salmonids was located and delineated on the ground in the Birch Creek watershed. Monitoring of this began in July 2001 and will be continued for a predetermined number of years after timber harvest is completed. The Forest Service completed essential fish habitat consultation with the National Marine Fisheries Service by including an essential fish habitat assessment in the Draft EIS.

Use of mitigation measures serve to substantially minimize potential effects to the project area fisheries resource. Measurable direct, indirect or cumulative effects to fisheries resources are not anticipated. The following discussions address the potential risk that unforeseen effects may still occur. It should be emphasized that this is only an indication of relative risk, not an estimate or expectation of adverse effects actually occurring.

Roads and Stream Crossings

Road construction and use often poses the greatest potential risk to riparian resources and fish habitat capabilities. Proposed road construction under Alternatives B and D require crossing streams to access timber harvest units (see Table Fisheries-2). Roads can affect fish habitat through the introduction of fine sediment, increased landslide potential and re-routing of sediment-laden water. Road construction also has the potential to affect upstream fish passage through improper placement or sizing of culverts.

Alternative B has the greatest amount of proposed road at 6.2 miles. Alternative C has no proposed road and Alternative D proposes 3.8 miles of road. The road through the OGR in Alternatives B and D has been routed so as to minimize adverse impacts to fish habitat and number of crossings needed. The road would be designed to reduce the footprint on the land. All crossings would be log-stringer bridges, which would be removed at the end of the sale. Alternative D does not require a crossing at Birch Creek.

Table Fisheries-2
Emerald Bay Stream Crossings by Alternative

	Alternative			
	A	B	C	D
Number of Crossings	0	12	0	7

Differences between numbers displayed here and those displayed in the Draft EIS are due to additional field information collected subsequent to Final EIS preparation.

Source: Forest Service GIS

Alternative D would require five fewer stream crossings than Alternative B. Risk to fisheries resources in Alternative D is less than Alternative B because no crossings are required at Birch Creek or in the large Class III streams in the upper flood plain. All required crossings would utilize log-stringer bridges.

Effects of Alternative D would be slightly greater than those of Alternative C because of sediment. A minor amount of sediment may be introduced into watercourses from road building, stream crossings, and road traffic. Of the two roaded alternatives, D would likely have fewer effects.

Of the three action alternatives, B is likely to have the most risk to fish habitat as a result of road construction. Alternative C would likely pose the least risk to fish habitat, while Alternative D would fall somewhere in between. Site-specific information is listed on the road cards.

Timber Harvest

Removal of riparian vegetation through timber harvest can affect fish habitat and fish populations by increasing sediment inputs into streams, changing stream temperature and dissolved oxygen levels, changing the input of large woody debris, and altering the delivery of water to streams. Alternative B proposes 599 acres for harvest treatment: 421 acres of clear-cut and 178 acres of selection harvest. Alternative C proposes 625 acres for harvest treatment, all either group or single-tree selection. Alternative D proposes to harvest the same acreage as Alternative C, using the same silvicultural prescriptions.

Of the three action alternatives, B is likely to have the most risk to fish habitat as a result of timber harvest. Alternatives C and D pose nearly the same risk to fish habitat from timber harvest. The risk from Alternative D may be slightly higher due to the effects of the road right-of-way harvest.

There would be no riparian area harvest along any Class I, II or III stream under any alternative. There is the possibility of loss of trees within riparian areas due to future windthrow; however, significant adverse effects to fish habitats or populations are not anticipated.

Timber harvest may remove riparian vegetation to the streambank along Class IV streams included in harvest units. These are all non-fishbearing streams, and water flows are often intermittent or ephemeral. While these streams have insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality and fish habitat, they inevitably do introduce some sediment.

BMPs are applied to these streams, and they may also receive additional protection in the form of full suspension over the stream, directional felling, or split yarding, based on the physical characteristics of the stream and the need to protect streambank integrity.

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Table Fisheries-3
Emerald Bay Effects of Timber Harvest by Alternative (miles of unbuffered streams)

	Alternative			
	A	B	C	D
Unbuffered Class IV	0	2.9	3.3	3.3

Note: Differences between numbers displayed here and those displayed in the Draft EIS are due to additional field data collected subsequent to Draft EIS preparation.

Source: Forest Service GIS

Indirect and Cumulative Effects

Use of the protection measures listed above serves to substantially minimize potential effects to the project area fisheries resource. Measurable direct, indirect or cumulative effects to fisheries resources are not anticipated.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include "reasonably foreseeable future actions" (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to occur over the next 5 years.

Since the Emerald Bay sale occurs in a distinct watershed, separated by topographic features from any other sales on public or private land (with the exception of the small 65-year-old harvest near the beach), cumulative effects to the fisheries resource are expected to be negligible.

Heritage Resources

The Emerald Bay project area is located on the northwest portion of Cleveland Peninsula where considerable archaeological survey has been conducted. The surveys conducted for the Emerald Bay Timber Sale EIS, in conjunction with the surveys for the Yes Bay/Mink Bay Land Exchange and the Smugglers Cove Recreation Shelter and Trail and the Cleveland Peninsula EIS surveys have added significantly to our understanding of the chronology of human occupation and patterns of subsistence on the Cleveland Peninsula.

Affected Environment

The Cleveland Peninsula occupies an important place in the traditions of the Tlingit people. Port Stewart, which was called Ganax or "safe, sheltered bay" (Emmons, 1916) is considered important to the Ganxadi and Ganaxtedi clans who derived their names from this area. Consultation regarding potential cultural sites and the results of archeological surveys was accomplished with the Wrangell Cooperative Association. According to Goldschmidt and Haas (1946) who conducted interviews with Native people in an effort to determine traditional land-use patterns, it was determined that the Emerald Bay area was within the territory of the Kiks'adi people of the Stikine area and was likely utilized for seasonal subsistence activities.

During the pre-field work literature search and analysis, a single notation indicating cultural use of Emerald Bay was located in T.T. Waterman's 1926 report "Tlingit Geographical Names for Extreme Southeast Alaska." Waterman listed in his field notes a portage trail from Spacious Bay on the east coast of Cleveland Peninsula to Emerald Bay. This report also suggests that a portage route was used from Yes Bay to Santa Anna Inlet. Kiks'adi oral traditions may indicate that at least one early migration of the clan utilized a route crossing between Spacious Bay and Vixen Inlet (John Feller, personal communication).

Field investigations were concentrated along the coastline and estuaries. An aerial reconnaissance of the interior areas between Spacious Bay and Emerald Bay indicates that there are a number of game trails which intersect and meander across the breadth of the peninsula (no project activities are proposed for the interior wetland areas). The topography from Emerald Bay to Spacious Bay gains up to 300 feet of elevation and is vegetated with dense berry bushes and a predominate overstory of hemlock along the drainages and higher elevations. The elevation and open muskeg environments are more consistent from Spacious Bay along the Wasta Lake and Creek drainage system to the vicinity of Vixen Point and Inlet. The assumption from these inspections is that a portage trail would be ephemeral and virtually indistinguishable from the many game trails currently present. A portage trail could have been followed to the Vixen Inlet vicinity as well as to Emerald Bay.

Archaeological surveys in Spacious Bay during 1996 and the Emerald Bay survey in 1998 failed to locate any camps or a specific trail that could be associated with a portage route. Despite intensive survey of the estuaries and the coastal areas with good shellfish concentrations, beaches to land boats, fresh water, and well-drained localities, no indications of long-term use were identified. One historic site, CRG-480, was identified and documented by the Emerald Bay survey. Additionally, the survey did identify 21 culturally modified trees (CMTs). The majority of these modifications were alcoves cut into the trees indicating fire-making activities associated with either recreational or subsistence activities. Four rectangular bark-stripped cedars are modifications that can be attributed to Native bark stripping activities. Thousands of hand-logged stumps were found throughout the area along the coast and estuary and for some distance inland from the coast, indicating extensive hand-logging activities during the 1900s. It is possible that these logging activities may have obliterated any cultural sites that

existed in the locality. Consultation with the SHPO however, found none of these sites eligible for the National Register.

Environmental Consequences

As currently planned, all harvest and most of the proposed road construction activities in the proposed alternatives for the Emerald Bay project area would fall in low-sensitivity areas for heritage resources (high elevations and steep slopes), as defined in the 1995 agreement between the Forest Service Alaska Region, Alaska State Historic Preservation Office, and the Advisory Council on Historic Preservation (#95MOU-10-029). The archaeological analysis from literature search and the subsequent field survey in areas having the highest probability for locating cultural resource sites has located no significant historic or prehistoric properties. It is expected that there would be no direct, indirect, or cumulative effects on any significant cultural resource sites from the activities planned here. Post-construction monitoring of a sample of roads and units would be implemented to further evaluate the sensitivity model.

Marine Environment, Log Transfer Sites and Related Facilities

Affected Environment

Marine Environment

Southeast Alaska's coastline consists of approximately 30,000 miles of tidal shoreline, roughly 60 percent of the total Alaskan coast. Within this region, a great diversity of habitats comprises Southeast Alaska's complex estuary and tidal environments.

The intertidal and subtidal marine environments are subject to effects from log transfer and storage facilities; these are the points of concentrated activity associated with marine transportation of logs. Deep bays or coastlines along straits or channels are preferred sites for log transfer facilities (LTFs), log storage areas, camp settlements, and anchorages. These areas are preferred because the deeper water and stronger currents flush out bark and debris that may enter the water, and therefore have less impact on marine life. Other marine areas are not addressed here because the timber harvest activities of this project are not expected to affect these areas.

The shallow marine waters and associated mud flats and estuaries found in the protected coves and bays of the Emerald Bay project area provide habitat for some important species such as Dungeness crab, sea cucumber and juvenile salmon. They are part of a complex and dynamic ecosystem that also includes shrimp, flatfish, marine worms, echinoderms, sponges, sea anemones, shellfish, plankton, marine algae, and other organisms.

The transportation of harvested timber on the project area requires that the logs be trucked or flown to the ocean, transferred to barges at an LTF, and towed to a sortyard for sorting. They are then moved to processing sites such as the sawmills at Ketchikan or Wrangell.

There is one potential LTF within the project area.

Table Marine-1
Proposed LTFs Associated with the Project Area

Location	Number	Latitude	Longitude
Emerald Bay	1	55 15 02 N	132 13 46 W

Source: Forest Service, J. Oien 1998

Log Transfer Methods

Two log transfer methods were considered in this analysis: (1) land-to-barge type facility, and (2) helicopter-to-water or barge facility.

Land-to-barge

The land-to-barge transfer system requires a deep-water bulkhead for the barge mooring facility. A minimum of 25 feet of water at low tide is required for barge operations. Logs are loaded directly onto the barge by use of a loader. Barges can also load logs floating in the water with on-board cranes.

Helicopter-to-barge

The helicopter transfer of logs to a barge consists of moving logs from the harvest area directly onto a barge.

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Each LTF requires a log transfer area, a small airplane and boat dock, an equipment off-loading ramp, and a log sortyard. These facilities are generally located within close proximity of the LTF to reduce costs and retain impacts within a localized area.

Sites Considered in Detail

The area is limited in the number of sites available for consideration due to the exposure to weather and outside waters. A total of two LTF sites were considered for this project. One site was eliminated from further consideration for terrain or environmental reasons. The other site would be developed as a land-to-barge site. Due to the single entry and lower volume of timber accessible to this LTF, the barge facility would be constructed to have a lower-than-normal impact on the marine environment. This will limit its use at lower tides and would require the use of smaller barges for the loading of logs. Emerald Bay LTF site #8 is proposed for log transfer of timber from the Emerald Creek drainage and the surrounding areas.

Initial reconnaissance of potential LTF sites was done in 1982 in accordance with the Alaska Timber Task Force Siting Guidelines for LTFs. Additional reconnaissance was done in 1998 and 1999 to ensure that the potential sites met the ATTF Siting Guidelines. An underwater survey of the marine habitat at the potential site was completed during the summer of 2000. With this information the design of the land-to-barge log transfer facility has been completed for permit application.

Additional information and analysis can be found in the Evaluation of Log Transfer Facilities. LTFs were selected using the Alaska Timber Task Force Siting Guidelines and Section 404(b)(1) of the Clean Water Act to mitigate the effects of LTFs on other resources and ecosystems.

Logging Camps

Float Camps

The number and locations of float campsites would depend upon the number of logging and road construction contractors engaged in implementing the project. Additionally, camp configuration and type (such as barge or log floats) would influence the location. The operator will obtain required State and Federal permits for camps.

Land Camps

The contractor/operator will be responsible for obtaining appropriate permits for camps. Solid waste disposal would not be allowed on National Forest System lands. There are adequate upland areas for land camps at the LTF site. One low-occupancy camp is anticipated. This camp may be shared by several contractors.

Environmental Consequences

Log Transfer Facilities

Barge LTFs

Barge LTFs probably have less effect on the marine environment than other LTFs, since logs are not rafted directly in the water; however, conclusive studies are not available for comparison. The rock bulkhead associated with the facility would be longer and slightly wider at the seaward end. The effects vary with each site. Bark and debris would accumulate only in a small area around the extreme seaward end of the facility. Contract provisions can be set in place to ensure contractor is avoiding these accumulations.

Helicopter-to-Barge LTF

Helicopter to a barge LTF probably has less effect on the marine environment than barge LTFs. Helicopter-to-barge LTFs minimize bark deposition and eliminate embankment in the marine environment.

Effects on Marine Benthic Habitat

Alternatives B and D propose utilization of one land-to-barge transfer facility to transfer logs from trucks to water. The lift off system may be either a single or double A-frame. Bulkhead

construction ranges in direct impact to the intertidal area from .1 acres to .25 acres. Alternative C proposes helicopter transport of logs from the harvest area directly to a barge. This method eliminates the need for truck haul and road development. All accumulated debris on the barge would be flown back to the harvest units. Table Marine-2 displays the construction costs associated with each LTF.

Table Marine-2
Construction Costs Associated with Proposed LTF

LTF	Number	Transfer Method	Transfer Equipment Cost ¹	Site Development Cost
Emerald Bay	1	Barge Bulkhead	0	\$80,000

¹Transfer equipment costs are not included in cost of transportation system development costs.

Source: Forest Service, J. Oien 1998.

During the transfer of logs from land to a barge, a small amount of bark may be deposited on the ocean bottom; bark also is continually sloughed off, while the logs are in rafts, by agitation from wind and waves. If the bark accumulates on the bottom, it can diminish habitat for bottom-dwelling crustaceans and mollusks, as well as hamper underwater vegetation used as food and rearing sites for fish and other organisms. The LTF has been designed to maximize the flushing of suspended bark away from the LTF area to the open sea before it can accumulate on the bottom. The timber sale contract would include provisions to make operator responsible for not allowing bark to enter the water.

Marine benthic habitat impacts are expected to be as follows:

- Structural Embankment: estimated 0.23 acres affected per site
- Site Bark Deposition: less than 1.0 acre /site

The marine benthic environmental impacts are displayed in Table Marine-3.

Table Marine-3
Estimated Marine Benthic Impacts (Acres) by Alternative

	Alternative			
	A	B	C	D
Affected by Structural Embankment	0	0.23	0	0.23
Affected by Bark	0	0	0	0

Source: Forest Service, J. Oien 1998.

All LTF types occupy approximately the same amount of bottom area but in different configurations. For instance, the low-angle ramp system with a 10 percent grade extends approximately 250 feet out into the water on a moderately sloped beach. This system is thus long and narrow. The land-to-barge systems proposed for this project use more shoreline and do not protrude out into the water as much as the low-angle ramp system.

Two publications describe some of the general effects of LTFs and log storage on the marine benthic habitat. Sedell and Duval (1985) summarize the information available on the effects log transport and storage has on marine resources and fisheries. Faris and Vaughn (1985) examined log transportation and log storage in Southeast Alaska. Detailed discussion of these can be found in the planning record.

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The Alaska Timber Task Force Siting Guidelines for LTFs attempt to mitigate the potential effects of bark dispersal and toxicity by: (1) locating LTFs in areas having the least productive intertidal and subtidal zones to avoid degradation of marine habitat, (2) avoiding sensitive habitats, (3) avoiding shallow water, and (4) providing that LTFs should be located along or adjacent to straits, channels, or deep bays where currents are strong enough to disperse sunken or floating wood debris. Currently, all active LTFs receive a yearly underwater diving and sampling transect as required by the EPA.

Both the helicopter-to-barge LTF proposed for Alternative C and the land-to-barge design proposed for Alternatives B and C would meet the siting guidelines outlined above.

Of the three action alternatives, B and D are likely to have the most risk to marine benthic habitat as a result of LTF construction. The construction of a land-to-barge LTF is designed to reduce the impact. Alternative C would pose less risk to marine benthic habitat than both B and D, as it does not require construction of an LTF. There is a small risk of bark deposition occurring from helicopter transfer of logs to barge. This can be minimized through timber sale contract provisions.

Juvenile pink and chum salmon that spend several months, immediately after out-migration, in protected bays and coves would be more likely to be affected by log transfer activities. These small fish are highly mobile as they feed on marine invertebrates. Some of their preferred food items live on the bottom surface. Bark accumulation and the area under the embankment of a standard bulkhead eliminates a small portion of the habitat of those food items but is unlikely to cause measurable adverse consequences.

It has been hypothesized that the breakwater usually associated with an LTF structure can cause greater mortality of pink and chum juveniles because they are forced to move into deeper water where more predators consume them. It is not known whether this is a major source of mortality in addition to the naturally low survival rate attributed to early marine life stage of juvenile pink and chum salmon. Because barge LTFs require longer breakwaters, the probability of this effect may be increased.

There is no formal documentation that LTF structures or activities associated with their use conflict with commercial fishing near the facility. If a facility were located in a small bay or cove, it is possible that there could be some difficulty maneuvering around moored barges to get to favorite fishing sites. No adverse consequences on commercial fishing, or subsistence use are anticipated as the result of LTF location. No adverse consequences to other marine resources such as Dungeness crab, sea cucumber, shrimp, flatfish, marine worms, echinoderms, sponges, sea anemones, shellfish, plankton, marine algae, and other organisms are anticipated.

Because none of these species are listed as threatened, endangered or sensitive, the Forest Plan provides no specific guidelines for management activities affecting them, but both types of LTFs, along with included contractual provisions are intended to further reduce the possibility of adverse impacts.

Camps associated with an LTF site can cause additional use of fisheries and marine sources. There are no data currently available on the amount of additional use occurring at various camp locations in the study area. The competition for resources at or near logging camp locations would probably increase. There is currently little or no information to indicate that resource allocation problems have occurred as the result of a logging camp. The Board of Fisheries and Game for the Alaska Department of Fish and Game (ADF&G) can control the amount of harvest by setting bag limits, shortening season lengths, or by instituting a complete closure of a fishery. If resource problems arise because of increased resource pressure due to a logging camp, the Forest Service would aid the ADF&G in attempting to resolve the problem. However, it is unlikely that utilization would progress far enough to cause adverse consequences on the fisheries or marine resources.

Of the three action alternatives, B and D are likely to have the most risk to fisheries habitat and marine resources as a result of LTF construction and camps. All three action alternatives present a slight risk of increased recreational fishing by logging camp residents. Designating offsite or inland locations can further reduce the impact from camps.

Wildlife

From a wildlife perspective, there are two types of effects associated with an LTF and camp. First, there is the potential loss of habitat due to clearing for the camp, sortyard, and associated facilities. The amount of habitat lost is relatively minor. Whenever possible, camps and sortyard facilities are located away from the highest-quality habitat. The objectives are to avoid eagle nest sites and estuarine habitat. The second type of effect is disturbance as a result of increased human activity associated with the camp. The overall effects of disturbance of wildlife use patterns are generally minor. Most wildlife species adapt to increased human activity but would be affected by increased hunting, and increased bear-human encounters.

Of the three action alternatives, B and D are likely to have the most risk to wildlife habitat as a result of LTF construction, roads and camps. Alternatives B and D propose road construction within an eagle nest protection area as well as an estuary fringe and will require a variance from the U.S. Fish and Wildlife service. They would also require space for decking logs for barge transfer. The area needed would be reduced by staging logs along the road until tides facilitate transfer to the barge. Alternative C would most likely require timing of helicopter harvest within the eagle nest protection area. All three action alternatives present a slight risk of increased recreational hunting by logging camp residents. Designating offsite or inland locations can further reduce the impact from camps.

Visual Resources

The large size, linear bold shape, and saltwater location of LTFs generally dominate the landscape when viewed within the foreground distance (less than 1 1/4 mile). Their relatively low profile, however, helps mitigate the negative visual impacts when viewed from the middle ground (1 1/4 mile to 5 miles). The visual contrasts of openings or clearings for sortyards and land camps, located on fairly level or gently sloping sites, help absorb much of their visual impact when viewed from saltwater. Of the three action alternatives, B and D are likely to have the most risk to visual resources as a result of LTF construction and roads. All three action alternatives would present short-term impacts on visual quality due to the presence of logging camps.

Long-term Productivity

The short-term effects of developing LTFs in the intertidal area can be compared to the value of long-term accessibility for timber management in the area. It is assumed that other resources would have similar management opportunities with or without access to the uplands from saltwater (by an LTF). Table Marine-4 compares the number of acres potentially affected by each LTF to the number of acres of suitable timber harvest for each location. Short-term use of 0.23 acres of estuarine habitat, all of which occurs in large estuaries, would provide access to 957 acres of land suitable for timber production. This roughly equates to 10-15 million board feet available to help meet the goals of the Tongass timber sale program.

Table Marine-4

Comparison of Short-term Impact on the Estuarine System to Long-term Harvest (Year 2000 to 2004)

LTF Name*	VCU Served by LTF	Estimated Acres of Impact on Estuarine System	Acres of Potential Harvest
Emerald Bay	7210	0.23	625

Source: Forest Service, J. Oien 1998

3 Environment and Effects

Of the three action alternatives, B and D are likely to have the most risk to long-term productivity. The land-to-barge LTF design is intended to reduce this impact.

Indirect and Cumulative Effects

Activities associated with the Emerald Bay Timber Sale should be completed by 2006. There are no future entries planned within the project area within the next 50 years. No effects associated with future activities planned within the vicinity of the project are expected. Future projects are discussed in the introduction to this chapter.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include "reasonably foreseeable future actions" (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to occur by 2006.

Other activities planned on National Forest System land in the vicinity of the Emerald Bay project area are not expected to affect or be affected by the Emerald Bay project. These are discussed in the Introduction of this chapter.

Mitigation and Monitoring

Forest-wide BMPs in addition to low-impact roading and LTF facilities are expected to reduce impacts on Marine Benthic Habitat. Forest-wide BMP monitoring would be performed. Specific mitigations and monitoring are discussed in the unit and road cards. Timber sale contract provisions designed to prohibit bark deposition in salt water should also help to reduce impacts.

Recreation

The Tongass recreation and roadless area resources are discussed in considerable detail in the Forest Plan EIS, Chapter 3. Recreation resources are also discussed in the Scenic and Recreation Resources Report for the Emerald Bay project (1999).

Affected Environment

All recreation occurring in the project area is land based and only accessible by boat or float-plane. The only logical saltwater-based access point is at the Emerald Creek estuary. At low tide there is a small sloping gravel beach to the left of the estuary. It appears this cove may offer suitable anchorage except in strong northerlies. There are no developed recreation sites at Emerald Bay or nearby. Although there are no records of recreation use within the project area, recreational use may occur along the shorelines of Emerald Bay and Emerald Creek in the form of fishing, swimming, and boating. Upland recreation may include hunting and hiking in the alpine areas south and west of Emerald Bay.

There have been reports of a historically significant heritage trail connecting Emerald Bay estuary to the Spacious Bay shoreline near the Wasta Creek outlet, a distance of nearly 7 miles.

Inventory of the recreation resource is accomplished by the Recreation Opportunity Spectrum (ROS). Six recreation experience settings define varying scales of human interaction levels and visitors' expectations, from Primitive to Urban. This range reflects levels of current and past human management activities. All the acreage in the project area is classified as Primitive - a setting that has never been altered by any resource utilization.

Recreation places are geographical areas of small to moderate size which have one to several features that are particularly attractive to people engaging in recreation activities and receive recurring use. These features may be beaches, streamside or roadside areas, trail corridors, hunting areas, camping and picnic areas, anchorages, or other features. The project area currently has no identified recreation places. Two potential recreation places are a location suitable for a trail, trailhead and shelter near the estuary, and an anchorage and/or mooring buoy in the bay.

Potential Emerald Creek - Spacious Bay Trail, Trailhead and Shelter

The potential trail and the trailhead are presently in an unmodified condition and are not directly affected by past timber harvesting. Views along some portions of the potential trail are modified. The bank of Emerald Creek opposite the potential trail was harvested in the past, but regrowth now covers most evidence of past harvest.

Potential Emerald Bay Recreation Place - Anchorage/Mooring Buoy

The potential anchorage and mooring buoy are presently in an unmodified condition and are not directly affected by past timber harvesting. Views from the buoy location should be unaffected by upland activities. Temporary effects impacts related to an active LTF would occur.

Inventoried Roadless Area

The entire 7,845-acre project area is within the inventoried 190,230-acre Cleveland Roadless Area #528. This roadless area is characterized by rugged terrain except for the uplands where the topography is flat wetlands and muskeg. The major scenic features are the diverse alpine terrain and small lakes. The area may have occasional minor use by local residents for recreation and subsistence. The project area's roadless character has been unaltered by human activity, its natural integrity is intact, and opportunities for solitude are excellent. The same is

Recreation Opportunity Spectrum

Potential Recreation Places

true for the southern portion of the roadless area, the area considered by most to be “the Cleveland Peninsula.” The southern portion of this roadless area receives significant local resident use for subsistence and recreation activities, and is highly valued for its unmanaged character.

Environmental Consequences

Potential Emerald Creek - Spacious Bay Trail, Trailhead and Shelter

There would be no site-specific, direct effects on the potential trail corridor under any alternative.

Potential Emerald Bay Recreation Site - Anchorage/ Mooring Buoy

Some minor visual disturbances may be seen from the potential mooring buoy. There would be no site-specific, direct effects on the anchorage under any alternative.

Only the roaded action alternatives, Alternatives B and D, would affect the project’s roadless characteristics. The status of “inventoried roadless area” is usually limited to unroaded areas (other than entire islands) at least 5,000 acres in size. Inventoried roadless areas are those meeting minimum requirements for possible future consideration as Wilderness.

Inventoried Roadless Area

Of the three action alternatives, Alternatives B and D are likely to change the roadless area status of the project area. Alternative A, the No-action Alternative, proposes no management activities in the project area. Alternative B proposes several clearcut harvest units along proposed roads on the east side of the area; these would not cumulatively result in the roadless character dropping below 5,000 acres. Alternative B proposes clearcut acres and a road of about 6.2 miles entering the area to the north of Emerald Creek; these alterations would change the roadless character only within the Emerald Creek drainage. Alternative C proposes no road construction. Alternative D proposes no clearcut units and 3.8 miles of low-impact road. Less than 1 percent of the roadless area would be affected by implementation of any of the action alternatives.

Direct, Indirect and Cumulative Effects

The Emerald Bay project would affect 7,845 acres of the 190,230-acre Inventoried Roadless Area #528 (4 percent). Given that more than half of the Emerald project area is in a medium Old-growth Habitat Reserve, cumulative effects on the roadless character of the area would be minimal.

Reasonably Foreseeable Future Actions

For the Emerald Bay project action alternatives, harvest is scheduled to occur by 2006. No reasonably foreseeable future actions adjacent to the Emerald Bay project are scheduled to occur after that time. Other harvest planned on National Forest System land to the north of the Emerald Bay project is not expected to affect or be affected by the Emerald Bay project. These projects are not in Inventoried Roadless Area #528 and are discussed in the Introduction to this chapter. The Vixen Inlet and Port Stewart Projects both fall within Inventoried Roadless Area 528. Road building related to these projects would affect the roadless character of their respective project areas and of the inventoried roadless area in general. These activities would be designed to comply with the regulations in place at the time.

Scenery

The following discussions and analysis are based on and summarized from the Scenic and Recreation Resources Report for the Emerald Bay project (1999). The scenic resources of the Tongass are also discussed in the Forest Plan.

Affected Environment

Visual Character of the Project Area

The scenery of the Emerald Bay project area is viewed from Ernest Sound, a major waterway utilized by the Alaska State ferry system, barge and ship traffic, small cruise ships, and numerous pleasure craft. Ernest Sound is oriented in a southwest to northeast direction with eastern views of the project area. As viewed from saltwater, the project area is typified by mountains rising steeply from the sea to elevations of 2,000 feet forming a bluff-like appearance. Visible portions of the project area are inland of this "bluff" area along a second mountain ridgetop and slope. The visible portions of the project area are framed and accentuated by a noticeable gap in the aforementioned bluff due to a narrow valley formed by Emerald Creek and its estuary meeting at saltwater. The project area ridgetop has visible alpine and open muskeg areas with little vegetation and steep, densely forested hillsides on north-facing slopes.

For planning and analysis, the scenic resource is described by viewsheds. A viewshed is an area of land visible from a specific use area or travel route. The Forest Plan identifies specific priority use areas and travel routes from which the scenic resource is to be specifically managed. The Emerald Bay project area has no priority use areas and only one priority travel route - the Alaska Marine Highway ferry route along Ernest Sound.

The visual condition of the project area appears natural and undisturbed although there are some indications of previous harvest when on the beach. There is evidence of handlogging and A-frame beach logging which occurred in the early 1900s, mostly along the creek bottom.

The Forest Plan provides specific visual management direction for the national forest lands within the project area. The Timber Production and Old-growth Habitat land use designations include visual resource standards and guidelines that apply to the timber harvest and related activities they may allow. Generally, and exclusive of the Old-growth Habitat designation, Timber Production encompasses areas not seen from the Alaska Marine Highway ferry route, and applies to the ferry route and Emerald Bay viewshed. The Timber Production designation allows foreground areas (up to less than 1/2-mile from viewer) to be moderately altered (15-25 percent visible disturbance), and middleground and background areas to be heavily altered (25-50+ percent visible disturbance). However, these heavily altered areas must appear as natural openings when viewed from 4 miles or more distant (background distance zone).

The Ernest Sound viewshed identified above is in a natural-appearing visual condition. This is a result of past beach and stream bottom harvest being fully regenerated to a near-mature height, color, and forested texture.

Visual Conditions of the Viewsheds

Non-Priority Travel Route Viewshed Ketchikan-Wrangell Aerial Flight Path

Scenic quality determinations from aircraft are not emphasized in the Forest Plan. However, this project area is on a major small aircraft route between Ketchikan and Wrangell. Aerial views of the project area from small aircraft are usually viewed from a 1,500-foot altitude. Emerald Bay is the northwestern terminus of a noticeable terrain feature - a mountainous escarpment connecting Spacious Bay on West Behm Canal to Emerald Bay. This visible and dominating physical feature marks a change in landscape types, from open, low-elevation

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muskegs interspersed with a few hills to a large, massive block of mountains with large areas of alpine meadows at the 1,500 to 2,500 foot elevation. Both commercial and private aircraft follow this natural terrain feature due mostly to safety. The likelihood of inclement weather along this aerial route forces many pilots to fly near minimum altitudes, thus forcing them to follow low-lying land features.

Environmental Consequences

The effects discussion centers on the viewsheds just described. All other areas are considered unseen from saltwater. See descriptions of alternatives in Chapter 2 regarding unit prescriptions and percent crown cover retained.

Effects by Viewshed

Priority Travel Route and Saltwater Use Area Viewshed

Alaska Marine Highway Ferry Route - Ernest Sound

Only two of the Emerald Bay units may be seen from the decks of a boat at some point along the route, and under Alternative B would appear as natural, muskeg openings from a background view of 4 miles or greater. Little noticeable change would result from the selective harvest of units visible from the boat route in Alternatives C and D. These units, as designed, would exceed the Forest Plan visual objective of maximum modification as viewed in the middleground from Ernest Sound visual priority route.

Non-Priority Travel Route Viewshed

Ketchikan-Wrangell Aerial Flight Path

All of the Emerald Bay harvest units would be visible from the air. Depending on aircraft flight altitudes and direction, these units would be in either a foreground or middleground viewing distance, and noticeable by air travelers. Although the majority of these units would be harvested by alternative harvest methods, some of these units would still exhibit textural differences for many years after harvest activities are completed.

Priority Travel Route Viewshed

The priority travel route viewshed is within the Timber Production and Old-growth Habitat land use designations of the Forest Plan. Over time, harvested areas within this designation may change from a slightly obvious altered character of even-textured old-growth forest with a few natural muskeg and alpine-like openings, to a more visually diverse forest. Harvest areas and edges visible to the Ernest Sound viewshed would be designed to reflect nearby landform shapes, with the visual impact of these openings receding relatively quickly. Ultimately, these openings would resemble natural occurrences from all points of view.

Indirect and Cumulative Effects

For those roaded portions in Alternatives B and D, the future would show more evidence of a working, industrial forest. Changes would be more obvious to forest visitors in the form of harvest units and supporting infrastructure. Current and future units in Alternatives C and D would be harvested with selection harvest prescriptions that would mitigate the visual effects of timber harvest.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include "reasonably foreseeable future actions" (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to occur by 2006.

Other projects planned on National Forest System land to the north of the Emerald Bay project are not expected to affect or be affected by the Emerald Bay project. These are discussed in the Introduction to this chapter.

Silviculture and Timber Management

The following discussions and analysis are based on a variety of sources including existing data, and data gathered during field visits in 1998 and 1999. Additional background on forest land classification, silvicultural and logging systems, and other related topics may be found in the Forest Plan EIS, Chapter 3: "Timber" and Appendix G. Applicable direction is contained in the Forest Plan, Chapter 2, Chapter 3 (Timber Production Land Use Designation), Chapter 4 (Forest-wide Standards and Guidelines), and Appendix A.

Affected Environment

Forest Land Classification

The natural vegetation of the Emerald Bay project area is a mosaic of coniferous forest interspersed with alpine tundra, muskeg (bog), shrubland, estuarine, and beach fringe plant communities. The area contains seven forested plant series, all of which are commonly found throughout southern Southeast Alaska: Sitka spruce, western hemlock, and mountain hemlock series; western hemlock-yellowcedar and western hemlock-western redcedar series; and mixed conifer and shore pine series. Together these are loosely termed "old-growth forest." The Biodiversity and Old Growth section of this chapter discusses aspects of old-growth forest not related to forest products. Various nonforested plant communities also occur in the project area, in estuaries, riparian areas, muskegs, alpine meadows, and alpine lichen rock outcrops.

National Forest System lands are defined by vegetative cover, soil type, and administratively or congressionally designated land use. This classification scheme is intended to show the amount of land that is covered by forest vegetation with further divisions to show the amount of land capable of, or available for, timber production. Appendix A of the Forest Plan provides a detailed discussion of timber resource land suitability. To be considered both suitable and available for harvest, lands must be determined tentatively suitable for timber management, and must be within a land use designation that allows timber harvest. For the project area, this is the Timber Production Land Use Designation. Within this designation, Forest Plan Standards and Guidelines also apply, making additional areas – the beach and estuary fringe, riparian management areas, and wildlife nest or den buffers – unsuitable or unavailable for timber harvest.

To be considered suitable for timber management, forested lands must not only be within developmental LUDs, they also must be capable of producing 20 cubic feet of tree growth annually, and/or must contain at least 8,000 board feet of net timber volume per acre. These are termed "commercial forest lands" (CFL). In the Biodiversity and Old Growth, and Wildlife sections of this chapter, CFL is divided into productive and nonproductive components.

Forest lands within the project area total 7,845 acres (there is no non-National Forest System land within the project area). Of the 7,845 acres of forest land, 6,888 are classified as unsuitable for timber management, either through land use designation (as Old-growth Habitat), standards and guidelines (riparian areas and the beach fringe), or soils or slope criteria. This leaves 957 acres currently tentatively suitable and available for timber harvest.

Forest Plan Desired Future Condition

A small portion (approximately 14 acres) of the Old-growth Habitat Land Use Designation near the estuary was harvested approximately 60 years ago. Historically, single-tree beach harvest has also taken place in the project area.

The term "silvicultural system" refers to a planned process whereby a stand is harvested, re-established and tended. The system name is based on the number of age classes present after the initial harvest, such as even-aged, two-aged and uneven-aged systems.

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Silvicultural Systems

Even-aged systems produce stands that consist of trees of the same or nearly the same age. A stand is considered even-aged if the range in tree ages normally does not exceed 20 percent of the age at which the stand is to be harvested (the "rotation age"). Seed tree cutting, shelterwood cutting, and clearcutting would produce even-aged stands.

Two-aged stands result from treatments which leave behind a substantial portion of the original stand structure in the form of large trees distributed or clumped throughout the stand area.

The remnant trees left on the site represent one "age class" and the newly established trees represent another age class.

Uneven-aged systems create stands that include three or more distinctly different age classes. Uneven-aged conditions are created through management by using individual tree or group selection methods.

Even-aged and two-aged systems more closely mimic the natural conditions of the large-scale disturbance ecologies (for instance, areas subject to windthrow) found throughout Southeast Alaska. Uneven-aged systems more closely mimic the gap-dominated old-growth ecosystems (where large-scale disturbance is not a major factor) found throughout Southeast Alaska. Although management practices in Southeast Alaska have used predominantly even-aged systems, recent studies on alternatives to clearcutting have provided valuable information on the local applicability of these systems. (McLellan, Michael H.; Swanston, Douglas N.; Hennon, Paul E.; Deal, Robert L.; De Santo, Toni L.; Wipfli, Mark S.; 2000. Alternatives to Clearcutting in Old-growth Forests of Southeast Alaska: study plan and establishment report; PNW-GTR-494. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest research Station. Deal, Robert L.; Tappeiner, John C., II. 2001. The effects of partial cutting on stand structure and growth of western hemlock-Sitka spruce stands in Southeast Alaska.

The selection of the appropriate silvicultural system is dependent upon the feasibility of achieving sound silvicultural objectives. These can include objectives for species composition, stand density, growth rate, insect and disease control, and overstory condition and development. Forest Plan direction and issues identified through scoping are used to define site-specific objectives which can be achieved through the application of another silvicultural system. In writing the prescriptions the silviculturist must balance the desired future condition of the project area with the silvicultural objectives of the future stand.

For a detailed discussion of silvicultural systems and methods, see the Forest Plan EIS, Appendix G. Factors influencing and criteria for selection of appropriate harvest methods and silvicultural systems are also presented in the National Forest Management Act implementing regulations (36 CFR 219.27) and the Alaska Regional Guide.

Logging Systems

Yarding is the process of conveying logs from the stump to the landing. This can be done using ground-based equipment, cable logging systems, or helicopters. The method used depends upon many factors including access, topography, slope, and resource protection needs.

Ground-Based Yarding

Moist, soft soil conditions in conjunction with steep slopes found in the project area prove difficult for ground-based equipment operation. Except for a limited amount of shovel logging with track-mounted log loaders, there is little opportunity for this type of equipment. Logging systems planning classified units as either cable, shovel, or helicopter yarded; however, some portions of cable units, especially along road rights-of-way, may be suitable for shovel yarding.

Cable Yarding

Cable yarding systems are the most common logging systems used throughout the Tongass National Forest. Cable systems are best suited for the steep slopes and wet soils of these areas, and most cable systems partially or fully suspend logs over the ground, minimizing soil disturbance. Currently, when partial suspension is required, running skyline has replaced

highlead as the favored cable system and is more economical than other cable systems. Other cable systems are prescribed where running skyline does not meet yarding requirements, such as when resource conditions require increased log suspension, or yarding distances exceed running skyline capabilities.

Helicopter Yarding

Helicopter yarding has been successfully used in all areas of the Tongass in recent years. With this system, logs are lifted off the ground (fully suspended) and flown to a specially prepared landing or barge. This yarding system causes the least amount of ground disturbance of all the yarding systems, but usually has the highest yarding cost. The economic feasibility of helicopter yarding is more closely affected by timber market values than is cable yarding. Factors that affect flight time and economic feasibility include elevation differences between stump and landing, logs/volume per acre, species mix and subsequent value, and payload capabilities of the aircraft.

Environmental Consequences

Goals and objectives for various land use designations and the application of appropriate standards and guidelines found in the Forest Plan would result in the use of a wide range of silvicultural systems from traditional even-aged clearcuts to uneven-aged group and single-tree selections. Alternative B prescribes a mixture of clearcutting and selection cutting. Alternatives C and D are entirely uneven-aged management (single-tree and group selection). Spatial distribution of retained trees would vary between harvest units and alternatives depending on resource objectives, site conditions and logging systems. Proposed harvest units range from 7 acres to 209 acres in size. No created openings exceed 100 acres. Unit-specific silvicultural prescriptions are outlined in the unit cards and are located in individual stand folders which are a part of the Emerald Bay project planning record.

Regeneration

All of the areas proposed for timber harvest are expected to be restocked within 5 years, as required by National Forest Management Act regulations (36 CFR 219.27(c)). Regeneration (stocking) surveys would be conducted on harvest units, in all of the action alternatives.

Successional Stages and the Desired Future Condition

After reforestation, managed forests grow through several distinctive successional stages in which different components dominate the stand and forest structure changes over time. Alternative B would convert the 421 acres to an even-aged, managed forest while attempting to maintain 178 acres in a regulated, uneven-aged condition. Alternatives C and D utilize uneven-aged management prescriptions and would follow successional pathways similar to gap-dominated old-growth forests.

The land use designation allowing timber harvest activities within the project area is the Timber Production designation. The Forest Plan desired future condition for Timber Production emphasizes a balanced mix of age classes. Alternative B would move the project area toward the desired future condition by creating a balanced mix of stand structures and ages. Alternatives B and D would emphasize maintaining the uneven-aged condition that is prevalent throughout the Cleveland Peninsula.

Alternative A proposes no timber harvest and thus converts no stands to a managed condition.

Long-term Timber Productivity (Yield)

All stands proposed for harvest are overmature and well beyond the age of maximum average annual growth of the stand. Most are representative of uneven-aged western hemlock stands that commonly take hundreds of years to develop under natural conditions. Harvest increases forest floor temperatures, speeding up organic decomposition and increasing the supply of

Silviculture

3 Environment and Effects

available nutrients to the trees. The effects of Alternatives C and D on long-term yield would be the conversion of unmanaged, slow growing, overmature stands to regulated, multi-aged stands. Immediate change would be less than in Alternative B; however, over the course of several cutting cycles this difference would begin to level out.

The open conditions created by even-aged systems applied in Alternative B allow for more rapid regeneration. With the use of precommercial thinning, an increase in the spruce and cedar components can be attained in an attempt to restore the original stand structure. Immediate effect on long-term productivity and yield is expected to be greatest in this alternative.

Post-harvest Silvicultural Treatments

Various post-harvest silvicultural treatments would be prescribed on a site-specific basis to help move the project area toward the Forest Plan desired future conditions. Treatments may vary from site to site depending on land use designation, slope, soils, aspect, elevation and resource objectives.

Units harvested under Alternative B may require planting to achieve NFMA stocking requirements. Additionally, precommercial thinning at 15-20 years would reduce the competition for sunlight, moisture, and nutrients. This additional growing space allows understory plants and remaining conifers to grow at accelerated rates for longer time periods than unthinned, young, even-aged stands. Precommercial thinning can also be used to change species composition and windfirmness of the stand.

Post-harvest treatments applied to Alternatives C and D would include regeneration surveys as well as evaluation of residual stands following harvest. Commercial thinnings could be applied in up to 100 years to maintain at least three age classes.

Variable spaced thinnings designed to accelerate stand movement toward an old-growth condition could be potentially applied in the future in the portion of the Old-growth Reserve that was logged in the early 1900s. However, recent surveys have indicated that at this time, such a treatment is not necessary as the stand is beginning to exhibit signs of moving naturally toward the desired structure.

Appendix A provides detailed rationale of why the Emerald Bay project area was identified for analysis at this time. Proposed harvest volume is displayed by VCU and alternative in Table TS-1.

Table TS-1
Proposed Harvest Volumes by Alternative

VCU	Measure	Total Volume			
		Alt. A	Alt. B	Alt. C	Alt. D
7210	MMBF	0	16.3	10.3	11.2
	CCF	0	33.9	22.9	23.8

Source: Forest Service, GIS

Timber Management

Effects on Tongass Timber Supply

As part of the Forest Plan revision process, estimates were made for several factors that have commonly led to actual harvest volumes from timber sales being less than the volumes estimated during project planning (see Forest Plan EIS, Chapter 3: "Timber" and Appendix B). These "management implementation reduction factors" (MIRFs) were applied to each Forest Plan alternative, and for each administrative area of the Tongass. Using these MIRFs to estimate actual volumes available over time should result in close correspondence between

planned timber harvesting and the volumes actually achieved during harvest implementation. Harvest volume “falldowns” experienced in prior years are not anticipated to occur on the Emerald Bay project.

Pre-planning and interdisciplinary field review for the Emerald Bay project has identified and accounted for many of these MIRFs through acreage deletions and updates of GIS data. Additional reductions resulting from application of Forest Plan Standards and Guidelines has reduced the suitable commercial forest lands within the project area by 5,300 acres or approximately 132 MMBF.

Economic deferral is dependent on changing economic conditions including log prices, the cost of accessing harvest units (roads), and the efficiency of harvest systems (including yarding and hauling costs). The economics of timber harvesting varies considerably over the short and long term and its effect on overall timber supply is difficult to quantify accurately. The Forest Plan divides the allowable sale quantity into two non-interchangeable components (NICs) based on economic factors, and requires the two NIC sale volumes to be kept separate for planning and accounting purposes.

Effects Relative to Logging Systems

All yarding is proposed in conformance with National and Regional Standards and Guidelines. Yarding systems were assigned through interdisciplinary analysis to minimize potential effects, and special yarding requirements are specified on the unit cards. On-site ground reconnaissance and field evaluations during the planning and layout process would ensure the yarding system assigned provides the required suspension to meet management objectives.

Alternatives C and D propose helicopter yarding.

Harvest acres by yarding system are shown in Table TS-2.

Table TS-2
Acreages of Logging Systems by Alternative

Yarding Type	Alt. B	Alt. C	Alt. D
Short Span Cable	269	0	0
Long Span Cable	117	0	0
Helicopter	185	625	625
Shovel	28	0	0

Source: USFS, Fletcher; 2000

Opportunities for Small Sales

The harvest units and volumes in all action alternatives would most likely be offered in one sale. There is a potential opportunity to separate volume in Alternative B into two sales by placing the helicopter-yarded portion in a separate sale. Table TS-3 displays the maximum number of sales by alternative, their range in size, and their average size. The Ketchikan-Misty Fjords Ranger District has an annual salvage and small sales program of approximately 1 MMBF, which provides small sale opportunities.

Table TS-3
Estimated Numbers and Sizes of Sales by Alternative

	Alt. B	Alt. C	Alt. D
Maximum Number of Sales	2	1	1
Smallest Offering (MMBF)	3-5	10.8	11.2
Largest Offering (MMBF)	9-11	10.8	11.2
Average Sale Size (MMBF)	7	10.8	11.2

Source: Forest Service, D. Fletcher 2000

Timber Financial Efficiency Analysis

Current Forest Service Handbook direction (FSH 2409.18; Amendment 90-1 and Supplement 6) requires a financial efficiency analysis to compare benefits and costs of a project. Values used in the analysis reflect high, current and low timber value estimates using standard timber (transactional evidence) appraisal procedures. The financial efficiency analysis compares expected gross revenues against estimated costs and arrives at an estimate of net revenues or stumpage values.

Table TS-4 displays the major timber sale financial components for each action alternative on a per-MBF basis at high, current and low market conditions. "Harvest Volume" includes total volume (sawlog and utility or cull) expected to be available under each alternative. "Gross Revenue" displays the value associated with the predicted harvest volume prior to deducting the "Transportation Costs" component which includes "stump-to-truck" logging costs, such as felling, bucking, yarding, loading, and related costs such as haul, log transfer, tow and raft as well as administration and profit and risk. "Construction costs" include all capital investments for the Emerald Bay project such as pit development, road construction, bridges and post project remediation. "Average Cost/MBF" displays the total cost for each alternative (Transportation plus Construction). "Net Revenue" displays the net revenue (also referred to as net stumpage) for each alternative after costs are subtracted from gross value.

Table TS-4
Timber Values and Costs by Alternative for High, Current and Low Market Conditions

	Alt. B	Alt. C	Alt. D
Total Volume (MBF)	16,391	10,792	11,182
Gross Revenue – High Market (\$/MBF)	417.90	443.06	416.79
Gross Revenue – Current Market (\$/MBF)	338.38	334.62	349.16
Gross Revenue – Low Market (\$/MBF)	317.45	306.69	331.75
Transportation Costs (\$/MBF)	176.93	504.49	268.56
Construction Costs (\$/MBF)	65.89	0	50.08
Average cost/MBF (\$)	242.82	504.49	318.64
Net Revenue (stumpage) – High Market (\$/MBF)	175.08	- 61.43	98.15
Net Revenue (stumpage) – Current Market (\$/MBF)	95.56	-169.87	30.52
Net Revenue (stumpage) – Low Market (\$/MBF)	74.63	-197.80	13.11

Source: Forest Service, D. Fletcher 2000

The Average Cost/MBF measure can be used to compare the overall financial efficiency of the alternatives. The cost is highest per MBF in Alternative C, which proposes to use helicopter yarding to eliminate road and LTF construction. The most efficient cost per MBF is

Alternative B. This alternative emphasizes more conventional clearcut harvest, cable yarding systems associated with a road system and less helicopter logging.

Alternative D reduces the long helicopter flight distances associated with Alternative C by constructing a haul road. This haul road is responsible for the increased financial efficiency.

The projected stumpage values are also useful for comparing the alternatives. Positive stumpage values generally indicate financial viability. Alternatives B and D show positive stumpage values for all three market conditions, while Alternative C shows negative values for all market conditions. Alternative B is the most economically viable alternative under all three markets. This can be attributed to road development and reliance on cable logging systems. The economic viability decreases with Alternative D which relies on less road and all helicopter yarding, and becomes negative when all road access and all cable yarding is eliminated.

When a sale appraises deficit, such as Alternative C, it must be advertised for not less than base rates (the value needed to recoup cost to the government and ensure required regeneration). The base rate value of Alternative C is \$7.13/MBF.

Helicopter Yarding Distance and Financial Efficiency

As evidenced above, the financial efficiency of a timber sale alternative can be altered substantially by the degree to which helicopter yarding is used and particularly by the distance over which the helicopter must transfer logs. One method to capture changes in financial efficiency attributed to helicopter yarding was developed by Region 10 (Lunde/Simmons 2000), which separates harvest units into logical harvest groupings based on yarding distance and average Region 10 helicopter-yarding costs. (A detailed explanation can be found in the Timber Resource Report in the Planning Record.) These groupings provide investment direction and display tradeoffs associated with specific harvest units. The regional average costs for helicopter yarding are displayed below by AYD (average yarding distance):

- 2,200 feet AYD: the adjusted cost would be \$300/MBF.
- 4,400 feet AYD: the adjusted cost would be \$525/MBF.
- 6,600 feet AYD: the adjusted cost would be \$750/MBF.
- 8,800 feet AYD: the adjusted cost would be \$975/MBF.

As the AYD increases, the associated average yarding cost increases as well, while financial efficiency decreases. Alternative B, with the best overall financial efficiency, would harvest the majority of its units in the lowest-cost category. Alternative C would harvest all units under the highest cost category. Although we used actual rather than average costs associated with the alternatives for the Emerald Bay project, this averaging methodology does provide another means by which to further refine the effects on financial efficiency associated with helicopter-yarding distances.

Table TS-5
Helicopter Units¹ by Alternative by MBF Average R10 Cost Category.

Alternative	\$300/MBF	\$525/MBF	\$750/MBF	\$975/MBF
B	1,2,3,9,10,11,12	5,6		
C				All Units
D	1,2,3,9,11,12	6,10	5	

¹Under all alternatives, units contains from 10% to 100% of their yarding component as helicopter yarding.
Source: Forest Service, L. Lunde 2000

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Direct, Indirect and Cumulative Effects

The Frosty Bay Timber Sale, which was harvested in 1993, is located 13 miles north of the Emerald Bay project area in a separate watershed and is the only other ground-disturbing activity which has occurred in the general vicinity of the project area. It harvested 1,184 acres and built 12 miles of road. Harvest units associated with the Frosty Bay project should be fully stocked prior to any activities occurring on Emerald Bay. The distance between these projects precludes significant impacts on or from the Emerald Bay project.

Reasonably Foreseeable Future Actions

For the Emerald Bay project action alternatives, harvest is scheduled to be completed by 2006. At that time, approximately 70 percent (421 acres) of the suitable timber base would have been removed under Alternative B. An additional 178 acres would be moving toward a regulated uneven-aged condition.

Alternatives C and D, by maintaining uneven-aged stands, would retain at least 50 percent of the basal area on 625 acres of suitable land. Secondary treatments would not be scheduled for at least 50 years.

Other harvest planned on National Forest System land in the vicinity of the Emerald Bay project is not expected to affect or be affected by the activities of the Emerald Bay project. These are discussed in the Introduction to this chapter.

Socioeconomics

Affected Environment

Socioeconomic Setting

The Emerald Bay project area is on the north coast of the Cleveland Peninsula. It is accessible by boat or small plane from Ketchikan and Wrangell. However, while somewhat accessible to many potential users, survey information shows that the principal users are from the Meyers Chuck community with potential additional use coming from Wrangell, Ketchikan, and Thorne Bay (Communities section of the Forest Plan EIS, pp. 3-529 to 3-680). Community use of the area, such as for recreation, hunting, or subsistence, is discussed in the Recreation, Scenery, and Subsistence sections of this chapter.

There is no comparable community-specific employment information available. The closest is subregional information for all Prince of Wales Island and outer Ketchikan communities combined; within this there is a breakdown for Cleveland Peninsula (Forest Plan EIS, pp. 3-514 to 3-516). In 1995, there were 14 wage or salary jobs in the Cleveland community group. Of these, all were lodging or recreation-related jobs. However, for the subregion of Prince of Wales and outer Ketchikan there were 490 (22.4 percent of all jobs) wood-product related jobs. While this is the highest ratio of logging-related jobs to all jobs in Southeast Alaska, it still represents a 30 percent decline in the past 5 years.

Environmental Consequences

Employment and Income Effects

Effects related to community uses of the area are discussed in other sections of this chapter, as noted above. The Proposed Action would include direct and indirect impacts to the economy. To estimate the amount of employment and income likely to result from timber harvest alternatives, a simple conversion of board feet to jobs and income is made, using multipliers developed for Southeast Alaska (Forest Plan Final EIS, page 3-480). Table SE-1 below shows the employment and income estimates for each alternative. These figures represent the number of jobs in logging, construction, marine transport, and sawmills directly related to each alternative. As would be expected, the higher the harvest, the more jobs and income that result.

Table SE-1
Logging-related Employment and Income by Alternative

	Alt. A	Alt. B	Alt. C	Alt. D
Employment (# jobs)	0	87	57	59
Income (million \$)	0	3.88	2.54	2.63

Source: Forest Plan, p. 3-480

Public Investment Analysis

Public Investment Analysis of the timber harvest alternatives does not include bid premiums that could result from competitive bidding for the timber when sold. The average Region 10 Budget Allocation costs and management expenses are subtracted from the net stumpage (revenue) to determine net value to the public. The costs and management expenses include NEPA planning, sale preparation, harvest administration, and engineering support. Table SE-2 displays public investment summary data by alternative.

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Table SE-2
Public Investment Summary

Economic Appraisal Inputs	A	Alternative		
		B	C ³	D
Total Volume (MBF)	0	16,391	10,792	11,182
Total Sawlog Volume (MBF) ¹	0	14,605	10,792	11,182
Roads (Miles)	0	6.20	0	3.8
Net Stumpage (from Table TS-4)				
(\$/MBF) High	0	175.08	-61.43	98.15
(\$/MBF) Current	0	95.56	-169.87	30.52
(\$/MBF) Low	0	74.63	-197.80	13.11
Forest Service Costs ²	409,283	44.46	57.41	56.09
Net Sawlog Value (Stumpage minus Cost)				
(\$/MBF) High	- 409,283	130.62	- 50.28	42.06
(\$/MBF) Current	- 409,283	44.46	- 50.28	- 25.57
(\$/MBF) Low	- 409,283	30.17	- 50.28	- 42.98

¹Current Region 10 policy requires appraisal based on removal of sawlog volume only

²Forest Service costs/MBF based on Region 10 average budget allocation of \$24.97/total MBF for NEPA, \$14.01/total MBF for Sale Prep., and \$5.48/total MBF for Sale Administration. For Alt A, costs are based on preparing an environmental analysis for a 16MMBF sale.

³Since Alternative C is in deficit for all market conditions, the base rate value of \$7.13/MBF is used in determining net sawlog value.

Source: Forest Service, D. Fletcher

There are no expected significant impacts on resources such as hunting, fishing, recreation, or tourism. Depending on the alternative, there could be a change in the Recreation Opportunity Spectrum and potential for the affected portion of the project area to change its potential for designation to Wilderness.

Other Resource Values

Non-timber Harvest Values

Neither present net value (PNV) nor Timber Sale Program Information Reporting System (TSPIRS) accounting conventions consider non-use values. Land uses that result in decreased visitation or in a change from higher-valued to a lower-valued visitor use would result in a net loss to society. Likewise, any activities which decrease society's willingness-to-pay for the area result in a loss.

The Forest Service is not required to quantify the non-market benefits and costs associated with every timber sale. However, the Forest Service is required to insure that all environmental amenities and values are given appropriate consideration in decision making along with economic and technical considerations. This Final EIS analyzes the potential effects of the project on environmental amenities and values such as water resources, roadless quality, recreation and scenery, wildlife, subsistence, and social concerns.

Returns to the Treasury and Payments to States

In previous years, a portion of the returns to the U.S. Treasury from Forest Service activities were returned to each State with national forest lands for distribution back to counties (or for Alaska, Organized and Unorganized Boroughs) having acreage within a national forest. These were often termed the "25 percent fund payments." Due to declining Forest Service receipts, primarily from timber sales, Congress passed new legislation in 2000 that provides a different method of compensating counties with national forest acreage. This is the "*Secure Rural Schools and Community Self-Determination Act of 2000*." At least as it applies to Alaska,

receipts from individual timber sales (or forest receipts as a whole) will have no bearing on the payments made under this Act. Since they now have no local or regional economic effects, estimated returns to the treasury will no longer be displayed for timber sale EISs.

Energy Requirements and Conservation Potential of the Alternatives

The implementation of the proposed alternatives would require the expenditure of energy (consumption of fuel). The amount of energy used varies by alternative, based on the timber volume harvested, the type of harvest system used, the amount of road constructed, and sale preparation and administration.

Fuel consumption requirements were estimated as follows:

Timber Sale Preparation and Administration	1.56 gallons per MBF
Cable/Shovel Logging	2 gallons per MBF
Helicopter Logging + 75 percent for each distance category	8 gallons per MBF
Load, Haul, Raft, and Tow	8 gallons per MBF
Road Construction	4,000 gallons per mile
Road Maintenance	20 gallons per mile

The estimated fuel consumption required for each alternative is displayed in Table SE-3.

Table SE-3
Estimated Fuel Consumption (Thousands of Gallons) by Alternative

Activity	Alternative			
	A	B	C	D
Cable/Shovel Logging	0	27	0	0
Helicopter Logging	0	25	281	93
Load, Haul, Raft, Tow	0	131	86	89
Road Construction	0	25	0	15
Road Maintenance	0	.12	0	.07
Sale Prep/Administration	0	26	17	17
Total Consumption	0	234	384	214
Average Gallons/MBF	0	14.3	35.5	19.1

Source: Forest Service, D. Fletcher

To help comprehend the amount of fuel used by alternative, the total fuel consumed can be translated into an everyday activity such as driving. Assuming the average driver in Ketchikan uses 15 gallons of fuel per week, fuel consumption could be 780 gallons per year. Table SE-4 displays the number of years a person could drive given the amount of fuel consumed by alternative.

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Table SE-4
Number of Years a Driver Could Drive by Fuel Consumed by Alternative

	Alternative			
	A	B	C	D
Gallons of Fuel Consumed	0	243,000	384,000	214,000
Number of Years One Could Drive	0	312	492	274

Source: Forest Service, D. Fletcher

The difference between Alternative C and D is 218 years. That means a person could have begun driving in the year 1727 and still would not be out of gas.

Indirect and Cumulative Effects

The Frosty Bay Timber Sale, which was harvested in 1993, is located 13 miles north of the Emerald Bay project area in a separate watershed. It is the only other ground-disturbing activity which has occurred in the general vicinity of the project area. It harvested 1,184 acres and built 12 miles of road. Any socioeconomic effects associated with Frosty Bay are not expected to add to or detract from those associated with Emerald Bay due to the 10-year interval between expected effects.

Reasonably Foreseeable Future Actions

For the Emerald Bay project action alternatives, harvest is scheduled to be completed by 2006. Other harvest planned on National Forest System land in the vicinity of the Emerald Bay project is discussed in the Introduction to this chapter.

Soils and Geology

The following discussions and analysis are based on pre-existing data combined with additional data collected in the field for the Emerald Bay project and is confined to the project area and proposed units. A Forest-wide treatment of soils may be found in the Forest Plan EIS, Chapter 3. Applicable soils direction is included in the Forest Plan, Chapter 4 and Appendix C. The unit and road cards contain additional site-specific implementation requirements.

The soils of the Emerald Bay project area are predominantly underlain by till at elevations less than about 1,000 feet. The upper limit of glacial till on the valley sides of the Emerald Bay watershed is about 1,200 feet. The thickness of the till deposits is extremely variable. As elevations increase and slopes steepen, soils are typically less than 20 inches thick and underlain by bedrock. On the broad, gently sloping ridgetops, organic soils have accumulated, typically to depths of more than 2 feet.

Affected Environment

Geomorphology and Geology

The Emerald Bay project area topography and landforms are characterized by a small U-shaped valley and broad ridges trending southwest, with a steep ridge running northwest and dropping directly into Ernest Sound. Soils are dominantly well drained and productive on the valley side slopes supporting hemlock/spruce forests. The broad ridgetops and the valley bottoms are covered with a combination of organic soils supporting bog vegetation and well-drained hemlock/spruce forests.

Karst Resources

Karst is a comprehensive term that applies to the unique topography, surface and subsurface drainage systems, and landforms that develop by the action of water on soluble rock - in the case of Southeast Alaska, limestone and marble. The dissolution of the rock results in the development of internal drainage, producing sinking streams, closed depressions, and other solutional landforms such as sinkholes, collapse channels and caves (White et al. 1995). The Emerald Bay project area has no known karst features.

Soil productivity in the project area is primarily a function of soil drainage and soil depth. Road construction and rock pit development cover areas of soil with rock and overburden, reducing the productivity of the site. Extensive soil disturbance within harvest units can have a detrimental impact on soil productivity. Soil disturbances are areas where felling of trees or yarding of logs has displaced the surface organic mat.

There are currently no roads or rock pits in the Emerald Bay project area. If roads are constructed and then abandoned, red alder would grow on most road surfaces of the project area.

Forested, poorly drained organic soils are extensive in the Emerald Bay project area; 1,311 acres have been mapped. Concerns with timber harvest on these soils include the ability of the site to grow 20 cubic feet of wood (on average) per acre, per year. The environmental consequences of timber harvest on these sites are discussed in the Water section of this chapter.

Approximately 462 acres of McGilvery soils have been mapped in the Emerald Bay project area. These soils consist of well-drained organic matter less than 20 inches thick over bedrock. Dragging logs across areas of thin McGilvery soils can physically displace the soil from a spot or yarding corridor. Field reconnaissance identified several small areas of McGilvery soils within and adjacent to proposed harvest units. Where soil displacement would likely exceed Regional Soil Quality Standards, the area of McGilvery soil was not included in the harvest unit. This resulted in the removal of two units and portions of two other units.

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Soil Erosion and Mass Movement

The relatively thick organic mat covering most mineral soils in the project area helps prevent surface erosion. Where the organic mat is displaced or mineral soils exposed, surface erosion can occur. Yarding of logs can displace the organic mat and allow surface erosion of underlying mineral soils. In steep, forested terrain with high soil-water levels, mass wasting (landslide) is the dominant erosion process. Topographic, geologic, and soil conditions usually determine where a landslide would occur; rainfall is probably the principal triggering force determining when landslides would occur.

Steep, forested terrain occurs throughout the Emerald Bay project area. An inventory of landslides in another location in the Ketchikan area found a landslide rate of one slide per 2,812 acres of productive old-growth forest and one slide per 496 acres of harvested second-growth forest. The slides in old growth averaged 0.6 acres and those in second growth 0.2 acres. Over the 20-year period covered by the inventory, five 1-acre landslides occurred on nonforested land.

Naturally unstable areas in the Emerald Bay project area include the portions of the lands above 1,000 feet elevation. The majority of the old-growth landslides occurred in the far east and northwest portions of the project area.

The Forest Service uses a mass movement index for preliminary identification of potentially unstable sites in a project area. The highest hazard soils (most mineral soils on slopes over 72 percent, and some on slopes over 60 percent) are not included in the available timber base. All proposed harvest units with slopes over 50 percent gradient or with some indication of instability were field reviewed by a soil scientist. Numerous areas of instability were identified and excluded from proposed harvest units. The soil scientist's resource report (contained in the planning record) documents the changes made to the initial group of proposed harvest units. Three proposed harvest units contain small areas (1-11 acres) with slopes greater than 72 percent. Based on an on-site slope stability evaluation, these areas are considered to have a relatively low landslide potential. These inclusions are identified on the unit.

Environmental Consequences

Soil Productivity

Indicators of potential adverse effects on soil productivity include acres of new roads and rock pits, and soil disturbances over 100 square feet. These measures are displayed for each action alternative in Table Soils-1. For roads and rock pits, the analysis assumes 4.8 acres per mile of road, and one 2-acre rock pit for every 2 miles of road. Soil disturbances larger than 100 square feet, called soil displacements, are considered detrimental to soil productivity (Region 10 Soil Quality Standards). The analysis assumes 5 percent displacement for areas where partial suspension yarding is planned and 2 percent displacement for areas where full suspension is planned. These are rough estimates based on timber harvesting on very steep slopes; in all likelihood, soil displacement on gentler slopes would be much less.

Table Soils-1
Effects on Soil Productivity by Action Alternative

Alternatives	Productivity Loss from Roads (acres)	Displaced Soils from Harvest (acres)	Rock Pits (number)
A	0	0	0
B	36	29	3
C	0	15	0
D	18	15	1

Source: Forest Service, D.Landwehr

The intent of the Regional Soil Quality Standards is to maintain soil productivity within acceptable parameters. The Standards allow up to 15 percent of the productive forest land to be in a disturbed condition. For harvest units on much of the Ketchikan area, typically less than 5 percent of the soils in steep slope timber harvest units are left in a disturbed condition. In addition, for the Emerald Bay project, Marten Standards and Guidelines require forest structure to be retained for all areas ranked as high-value habitat; helicopter yarding would be required to harvest most of the partial-cut units, further reducing potential disturbance. Soil displacements and other potentially adverse impacts to soils within harvest units are anticipated to be within Soil Quality Standards.

Harvest on over-steepened slopes (72 percent or greater) is generally avoided, as these lands are considered unsuitable for timber harvest. Forest Plan Standards and Guidelines allow harvest on over-steepened slopes when on-site analysis determines that the potential for adverse effects is low. Field reconnaissance by the soil scientist has identified specific areas with slopes 72 percent or greater that have low landslide potential. The action alternatives propose to harvest a total of 14 acres of slopes over 72 percent. Unit specific recommendations and mitigations are addressed in the Unit Cards.

Landslide rates within the project area were discussed under "Affected Environment." Factors affecting the landslide rate in future harvest units include the amount of timber harvest on steep slopes and the amount of soil disturbance in harvest units. Log suspension requirements would reduce the amount of soil disturbance, and partial-cut harvest is prescribed for many units, further helping to maintain the root mat in harvested areas.

The analysis here assumes that one landslide would occur in the next 20 years for each 622 acres of timber harvested (or, one landslide per year per each 12,440 acres of harvest.) The average size of the second-growth landslides is 0.2 acres. The analysis also assumes that one 3.1-acre landslide would occur in the next 20 years for each 6,239 acres of old growth.

Applying these assumptions to the alternatives, including Alternative A (No Action), results in little difference in estimated landslide effects (occurring over the next 20 years) between alternatives.

Table Soils-2
Estimated Acres of Landslides by Alternative per 20-year Time Period.

Alternative	Acres of Old-growth Landslides	Acres of Second-growth Landslides	Acres of Road-related Landslides	Total
A	2.6	0.0	0.0	2.6
B	2.3	0.7	0.2	3.2
C	2.2	0.7	0.0	2.9
D	2.2	0.7	0.1	3.0

Source: Forest Service, D.Landwehr

Indirect and Cumulative Effects

Under Alternative B it could be assumed that if all suitable forest land in the project area is harvested this entry, the project area could have 6.2 miles of road. This is about 36 acres of National Forest System lands occupied by roads, or 0.5 percent of the project area. Alternative D, which proposes to build 3.8 miles of road (to lower-impacting standards), can be assumed to move approximately 14 acres of National Forest System lands to a roaded condition. Alternative C proposes to build no roads.

3 Environment and Effects

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include “reasonably foreseeable future actions” (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is likely to occur by 2006.

Other harvest is planned on National Forest System land to the north of the Emerald Bay project. These projects are addressed in the Introduction to this chapter.

Mitigation and Monitoring

Soil resource protection prescriptions, landslide mitigation measures, and applicable Best Management Practices (BMPs) are listed on unit and road cards. Due to the relatively thick organic mat covering most mineral soils, surface erosion is limited to displaced areas, roads, stream banks and recent landslide tracks. Displaced areas within timber harvest units are routinely slashed and seeded shortly after they occur. Slashing the disturbed site provides soil cover, reducing the force of raindrop impact and the length of exposed slope. Grass seeding and fertilizing the area further provides soil cover and provides some organic matter for soil revegetation. Other BMPs are intended to keep surface erosion to a minimum practicable amount.

Subsistence

The following discussions and analysis are based on the detailed subsistence information and analysis contained in the Forest Plan EIS, Chapter 3: "Subsistence" and "Communities," Appendix H, and the "Deer Harvest Map" in the map packet. See also the Wildlife section of this chapter for additional analysis of deer and other wildlife species.

Affected Environment

Subsistence and ANILCA

Subsistence is a broad term applied to many natural resource uses of rural Alaskans. In the Alaska National Interest Lands Conservation Act (ANILCA), subsistence is defined (in part) as: "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation" (ANILCA Sec. 803). ANILCA provides for the continuation of these uses "consistent with sound management principles, and the conservation of healthy populations of fish and wildlife" (ANILCA, Sec. 802). For many rural Alaskans subsistence is a way of life; for many rural Alaskans it also carries heritage and religious meaning.

The analysis of subsistence uses and resources on National Forest System lands, and of potential effects resulting from management activities, is also required by ANILCA (Sec. 810). This analysis typically focuses on food-related resources, which are the ones more likely to be affected due to loss or alteration of habitats from land-altering activities. (The identification, protection and interpretation of heritage and historic resources on Federal lands are covered under other legislation, including the National Historic Preservation Act. See the Other Resources and Heritage sections of this chapter.) The analysis also typically focuses on three factors: abundance and distribution of the resources, access to them, and competition for the use of them. Under ANILCA, if it is found that a significant restriction on subsistence resources may occur (from a specific project or cumulatively for a geographic area), additional analysis and findings are required.

Subsistence Resources and Uses

The Forest Plan EIS provides a comprehensive analysis of subsistence resources and potential effects, both Tongass-wide and for each rural community of Southeast Alaska. That analysis concluded that Forest-wide, under full implementation of the Forest Plan, the only subsistence resource that may, in the future, be significantly restricted is subsistence use of deer (Forest Plan EIS, pp. 3-224 to 3-229). The following is tiered to this analysis.

Salmon and trout are the principal subsistence fish resources of the area. They may be harvested in both fresh and saltwater in the project area with a State of Alaska fishing license. Alaska Department of Fish and Game does not grant personal use permits for Emerald Creek. Use of salmon and trout in the project area is minor. The principal subsistence wildlife resources of the project area are probably deer and smaller furbearers such as marten. Except for deer, use of wildlife species for subsistence purposes is relatively minor. (Forest-wide, measured by weight, deer account for 21 percent of subsistence food resources, and all other land mammals 4 percent (Forest Plan EIS, p. 3-224).) Potential effects to any of these fish and wildlife species as subsistence resources are discussed under "Environmental Consequences" below. Other subsistence uses of natural resources may occur. Some examples are cedar bark gathering, berry picking, mushroom gathering, use of native plants for arts and crafts, use of bays and estuaries for shrimp and crab, and collection of other edible plants and animals. Most of these activities are associated with a particular traditional site. These sites vary in location and are not accurately mapped. The Emerald Bay project could affect these sites if any fall inside proposed units.

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Community use of deer for subsistence purposes is well documented and studied for the rural communities of Southeast Alaska (see Forest Plan EIS, pp. 3-210 to 3-223 and 3-523 to 3-528). Community use of specific geographic areas for obtaining deer is estimated by the wildlife analysis areas (WAAs) used by the State of Alaska. For the purposes of the wildlife analysis of the Emerald Bay alternatives, WAA 1817 would be used to represent harvest patterns for the project area (the Emerald Bay project area actually corresponds to 12 percent of this WAA).

Community use of each WAA for deer is displayed on the "Community Deer Harvest" map included with the Forest Plan EIS (map packet). The map shows that from 1987-1995, the average reported annual harvest in WAA 1817 was 24 deer. Three communities (or community groupings) were responsible for the entire reported harvest of deer in WAA 1817: Ketchikan (71 percent), Wrangell (17 percent), and Meyers Chuck (12 percent). Community use is further discussed and displayed in the Forest Plan EIS in the "Communities" portion of Chapter 3 (pp. 3-523 to 3-685) and in Appendix H. Appendix H identifies for each community those WAAs (ordered by highest to lowest use) accounting for 75 percent of that community's deer harvest. Of the communities listed above, WAA 1817 shows up for only Meyers Chuck where, on average, 3 of 24 reported harvested deer come from WAA 1817. As the Emerald Bay project area is only 1 percent of the WAA, this equates to less than one Meyers Chuck deer from the project area.

It can be said, then, that Meyers Chuck is the only one of the communities representing a substantial portion of the deer harvest occurring in WAA 1817 (12 percent) for which that harvest makes up a substantial portion of its historic deer use (13 percent). (All future demand projections are extrapolations based on current use and population growth.) The discussion of potential effects on the subsistence use of deer in the project area would thus focus on Meyers Chuck as the only community potentially significantly affected.

Environmental Consequences

The analysis of effects is based on the ANILCA categories previously mentioned: abundance and distribution, access, and competition. No restrictions on access to the project area for subsistence uses are anticipated. The project area and the entire WAA are accessible by boat or float plane. The project area is 12 air miles from Meyers Chuck, 35 air miles from Wrangell, and 40 air miles from Ketchikan.

Abundance and Distribution

With application of the Riparian Standards and Guidelines of the Forest Plan, no significant adverse effects on salmon or trout species are anticipated under any alternative (see Fish section of this chapter). No significant adverse effects are anticipated for wildlife species, including deer (see Wildlife section of this chapter) for the following reasons:

1. Only about 10 percent of project area (1 percent of the WAA) would be harvested.
2. Most (67 percent) of the project area has been designated as a medium OGR.
3. Forest Plan Standards and Guidelines would be implemented.

Models predict a decline in deer habitat capability of 8 percent under any action alternative. (Details of the analysis of deer habitat effects can be found in the Wildlife section of this chapter.) These declines would occur with the harvest of old-growth timber. This project would only impact 5-10 percent of the low elevation (less than 1,200 feet above sea level) old growth in the project area. Implementation under the Forest Plan would require 1,000-foot beach and estuary fringe no-harvest zones along all saltwater beaches and estuaries, the application of riparian buffers along all streams, and the protection of 67 percent of the project area in Old-growth Habitat Reserves. All these result in considerable protection of important deer winter habitat.

Competition

In addition to these measures minimizing loss of key deer winter habitat in the project area, deer habitat decline must also be put in the perspective of subsistence use of deer in the area. As discussed under Affected Environment above, only one Southeast Alaska community, Meyers Chuck, relies on subsistence deer harvest in WAA 1817 for a substantial portion (12 percent) of its subsistence food needs. There are several reasons to suspect that this project would have a small, if any, effect on subsistence use of deer: 1) the planned units are 1 mile or more from the beach, 2) the project area is only 12 percent of WAA 1817, 3) the project area is the portion of WAA farthest from Meyers Chuck, and 4) field visits suggest that deer numbers are higher at Union Bay and Vixen Inlet, which are also closer to Meyers Chuck.

Historic numbers of deer harvested, and potential direct and cumulative effects of full implementation of the Forest Plan in conjunction with the anticipated future demands for deer, are displayed and discussed for each Southeast Alaska community in the Forest Plan EIS. Three levels of deer use are evaluated for each community for those areas (WAAs) the community most relies on: use by community residents only, use by all rural (subsistence) hunters, and use by all hunters (including those from non-rural communities and hunters from out of State, neither of whom are considered subsistence users under ANILCA). Under ANILCA, a priority for use would be granted to rural users if restrictions on use of a resource are necessary. If further restrictions on a use were necessary, then that is the point at which a significant restriction on subsistence uses may occur. Such a restriction could occur from either reduced abundance or increased competition.

In order for an area (in this case a WAA) to produce on the average enough deer for species viability, as prey for other wildlife species (primarily wolf), and for human uses (subsistence and other hunting), deer harvest by humans should not exceed a certain average percentage of the habitat capability for that area. The Forest Plan EIS analysis makes two assumptions in this regard (p. 3-537):

- Hunters in areas where harvest or demand is within 10-20 percent of habitat capability may experience reduced hunter efficiency and moderate difficulty in obtaining deer.
- In areas where demand (or current/historic use) exceeds 20 percent of habitat capability, deer harvest may be restricted either directly or indirectly.

Indirect and Cumulative Effects

The analysis for Meyers Chuck (Forest Plan EIS, pp. 3-536 to 3-537, and H-65) shows that current (historic) use of WAA 1817 for Meyers Chuck alone is 0.2 percent of habitat capability, and for all rural users 0.4 percent. By the year 2005 (assuming full Forest Plan timber harvest, including the Emerald Bay project), with habitat capability down slightly and demand up slightly, use by Meyers Chuck residents is at 0.3 percent of habitat capability, and by all rural users 0.5 percent. Thus for short-term cumulative effects (the Emerald Bay project and all past projects), no restrictions on use by subsistence hunters would occur. (Demand including all hunters, rural, non-rural, and nonresident, is at 1.6 percent in 2005.)

After 100 years of full implementation of the Forest Plan (long-term cumulative effects), demand by Meyers Chuck residents is projected to reach 0.4 percent of habitat capability, and by all rural users of the area to reach 1.0 percent. Demand by all hunters is projected to be at 3.2 percent. Based on the preceding analysis, this EIS concludes that the Emerald Bay project would not pose a significant possibility of a significant restriction on any subsistence resource within the project area, from past, current and reasonably foreseeable future actions.

Under Alternative B the project area could have 6.2 miles of road. This is about 36 acres of forest land occupied by roads, or 0.5 percent of the project area. Alternative D, which proposes to build 3.8 miles of road, and to lower-impacting standards, can be assumed to move half the suitable land to a roaded condition. Alternative C proposes to build no roads.

The Frosty Bay Timber Sale, which was harvested in 1993, is located 13 miles north of the Emerald Bay project area in a separate WAA and is the only other ground-disturbing activity

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which has occurred in the general vicinity of the project area. It harvested 1,184 acres and built 12 miles of road. Activities on the Emerald Bay project are not expected to affect or be affected by the Frosty Bay Sale.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include “reasonably foreseeable future actions” (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to occur by 2006.

Other projects are planned on National Forest System land in the vicinity of the Emerald Bay project. These projects are addressed in the Introduction to this chapter. Only the Vixen Inlet project proposes harvest in WAA 1817.

Threatened, Endangered and Sensitive Species

The following discussions and analysis are based on and summarized from the Wildlife Resources Report for the Emerald Bay project area (1998), a more detailed treatment referenced to the scientific literature. This report also includes the Biological Assessments required for all threatened and endangered species, and the Biological Evaluations required for Forest Service sensitive species. Direction for threatened, endangered and sensitive species is contained in the Forest Plan, Chapter 4.

Affected Environment

Threatened or Endangered Species

Federally listed threatened and endangered species are those plant and animal species formally listed by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS), under the authority of the Endangered Species Act of 1973, as amended. There are also other species for which concern regarding viability has been expressed (some of these were previously listed as USFWS Species of Concern or Category 2 candidate species when there was information indicating the species might qualify for threatened or endangered status, but for which further evaluation was needed). The State of Alaska has an Endangered Species law which authorizes the commissioner of the Alaska Department of Fish and Game (ADF&G) to list Alaska endangered species. The Regional Forester can also designate species occurring in national forests as "Sensitive."

No threatened, endangered, or proposed fish species are found in the freshwater river systems in the project area. Ten threatened species of salmon and three endangered species of fish may be present in the general vicinity in saltwater during the marine rearing period of their life cycle (Table TES-1). However, the presence of these Pacific Northwest salmon is not documented for these waters. No threatened, endangered, or proposed plant species are known to occur in the project area.

Biological Assessments have been prepared to evaluate the effects of the Proposed Action on one federally listed threatened and one endangered species of marine mammal (Table TES-1). These species are discussed below, based on the information in these assessments. A Biological Assessment for the humpback whale and Steller sea lion has been submitted to NMFS. No other threatened, endangered, or proposed birds or mammals are known to occur in the project area. (Table TES-1)

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Table TES-1
Threatened and Endangered Species that may occur in or near the Emerald Bay project area

Common Name	Scientific Name	ESA Status	Summary of BA/BE Finding
Humpback whale	<i>Megaptera novaeangliae</i>	Endangered	No effect
Snake River sockeye salmon	<i>Onchorhynchus nerka</i>	Endangered	No effect
Upper Columbia River spring chinook salmon	<i>Onchorhynchus tshawytscha</i>	Endangered	No effect
Upper Columbia River steelhead	<i>Onchorhynchus mykiss</i>	Endangered	No effect
Steller sea lion	<i>Eumetopias jubatus</i>	Threatened	No effect
Snake River spring/summer chinook salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	No effect
Snake River fall chinook salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	No effect
Puget Sound chinook salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	No effect
Lower Columbia River chinook salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	No effect
Upper Willamette River chinook salmon	<i>Onchorhynchus tshawytscha</i>	Threatened	No effect
Snake River Basin steelhead	<i>Onchorhynchus mykiss</i>	Threatened	No effect
Lower Columbia River steelhead	<i>Onchorhynchus mykiss</i>	Threatened	No effect
Upper Willamette River steelhead	<i>Onchorhynchus mykiss</i>	Threatened	No effect
Middle Columbia River steelhead	<i>Onchorhynchus mykiss</i>	Threatened	No effect
Lake Ozette sockeye salmon	<i>Onchorhynchus nerka</i>	Threatened	No effect

Source: Forest Service, M. Brown

Humpback Whale

Humpback whales (*Megaptera novaeangliae*) are occasionally found in waters bordering the project area. The local distribution of humpbacks (listed by NMFS as endangered) in Southeast Alaska appears to be correlated with the density and seasonal availability of prey, particularly herring (*Clupea harengus*) and euphausiids (shrimp-like crustaceans). Important feeding areas include Glacier Bay and adjacent portions of Icy Strait, Stephens Passage/Frederick Sound, Seymour Canal, and Sitka Sound. Other areas of Southeast Alaska may also be important for humpbacks and need to be evaluated. None of these are within or adjacent to the project area.

Steller Sea Lion

Steller sea lions (*Eumetopias jubata*) are also occasionally found in waters bordering the project area. The Steller sea lion (listed by NMFS as Threatened) ranges from Hokkaido, Japan, through the Kuril Islands and Okhotsk Sea, Aleutian Islands and central Bering Sea, the Gulf of Alaska, Southeast Alaska, and south to central California. Information on Steller sea lion population trends in Southeast Alaska is limited, but suggests that Steller sea lion populations are stable in Southeast Alaska. There are no known Steller sea lion haulouts in the project area; the closest is located on Easterly Island about 1.5 miles to the west.

Trumpeter Swan

The trumpeter swan (*Cygnus buccinator*) is the largest waterfowl species in the world. Its present range is only a vestige of the once vast region of North America that it frequented in both summer and winter. Trumpeter swans breeding in Alaska spend the winter along the Pacific Coast from the Alaska Peninsula to the mouth of the Columbia River, where they take advantage of open waters of saltwater estuaries and freshwater lakes and rivers. Trumpeter swans may be present in the project area during the fall, early spring migration period, and winter, although there appears to be little swan habitat in the project area. Swans typically leave for their breeding area by mid-April. Swans have not been reported in or near the project area during the summer.

Queen Charlotte Goshawk

The Queen Charlotte goshawk (*Accipiter gentilis laingi*) is a raven-sized raptor associated with forests having tall trees and dense canopies. These features allow goshawks to hunt beneath the tree canopy, and to capture prey before the prey escapes into the trees or shrub layer. The dense canopy in tall trees fosters a more abundant prey species population and provides a microclimate suitable for nesting. Goshawks forage over home ranges that are typically 6,000 to 8,000 acres in Southeast Alaska, though home range may be twice that size in fragmented forests.

The northern goshawk has been a species of concern for all of its range, including the Queen Charlotte subspecies which is present in Southeast Alaska. Following a petition for listing, and appeal of an initial not-warranted determination, the USFWS issued a 1997 decision that listing the species as threatened or endangered at this time is not warranted.

Goshawk surveys were completed in 15 potential habitat locations in the Emerald Bay project area in April and July of 1998. Surveys followed Tongass National Forest protocols for the northern goshawk. Ten broadcast survey points (11.9 hours) and 5 overlook survey points (6.2 hours) were completed. Field crews observed no goshawks and found no goshawk nests.

Choris Bog Orchid

In Alaska, the Choris bog orchid (*Platanthera chorisiana*) is limited to the Aleutian Islands and southern coastal areas. Recent botanical surveys on Revillagigedo Island have revealed a number of populations of this species. With the increasing number of observations, it seems that this species is not as rare as previously thought. This species was removed from the sensitive list following publication of the Draft EIS. Botanical surveys discovered populations of the plant in Units 3 and 12.

Sensitive Species

Species of Interest

Environmental Consequences

The following analysis includes discussions of the relevant mitigation measures from the Forest Plan. An additional mitigation discussion at the end of this section, as is included in most other Chapter 3 sections, is therefore not included.

Effects on Threatened or Endangered Species

None of the alternatives are anticipated to adversely affect the humpback whale or Steller sea lion. Biological Assessments for each species are included in the project planning record, and the effects analysis for each are summarized below.

Humpback Whale

No direct or indirect effects on whales from implementation of forest management activities under any alternative are anticipated. Forest Plan Forest-wide Standards and Guidelines for Threatened and Endangered species provide for the protection and maintenance of whale habitats. All activities would be conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching whales, dolphins, and porpoise.

One potential indirect effect has to do with the use of log transfer facilities (LTFs). A portion of the logs harvested from the Emerald Bay project may be transported using an LTF. Two types of boat activity associated with LTFs, log raft towing and recreational boating by workers, may have an effect on whales. Log raft towing routes are generally well established, and adverse effects from log raft towing have not been documented.

Steller Sea Lion

Forest Plan Standards and Guidelines provide for the protection and maintenance of sea lion habitats. All activities would be conducted in a manner consistent with the Marine Mammal Protection Act, the Endangered Species Act, and National Marine Fisheries Service regulations for approaching seals and sea lions. After consultation with the National Marine Fisheries Service, additional procedures to prevent disturbance of the Easterly Island haulout would be required for the Emerald Bay project. These additional procedures were added because during lower tides the haulout has relatively abrupt dropoffs that could be hazardous to sea lions. Project-associated boats would be required to remain at least 200 yards from the haulout. Project-associated aircraft would be required to remain at least 0.5 miles horizontal and 1500 feet vertical distance from the haulout. The Emerald Bay project should have no adverse effects on Steller sea lions or on their critical habitat.

Effects on Sensitive Species

Trumpeter Swan

All Forest Plan Standards and Guidelines for trumpeter swans are incorporated. These direct avoiding any disturbance of trumpeter swans, particularly during nesting, brood rearing, and wintering periods. If trumpeter swans are found to be using habitat within the project area, road building and timber harvesting would not occur within 0.5 miles of used habitat when swans are present (normally from November 1 to April 1).

Queen Charlotte Goshawk

All action alternatives would harvest stands capable of providing nesting and/or foraging habitat for goshawks (i.e., old-growth forests). Alternatives B and C would reduce old-growth forest in the project area by about 13 percent from existing conditions. Any clearcut units with high-value marten habitat would maintain 10-20 percent canopy cover under Forest Plan Standards and Guidelines for marten. In contrast to traditional clearcut harvesting, this increase in standing trees left within the units should result in better maintaining goshawk habitat conditions. Partial cut units would likely leave about 50 percent of the trees and/or 50 percent of the basal area. It is not known what the actual effects of timber harvest would be, other than that the total amount of undisturbed old-growth habitat would be reduced. Alternative B would remove the most canopy cover: 421 acres of clearcut harvest and 178 acres of partial harvest.

Alternative C would partial harvest 625 acres with a target of leaving 50 percent of the trees and/or 50 percent of the basal area.

There are no confirmed goshawk nesting sites in or near the Emerald Bay project area. However, goshawks are extremely difficult to locate and it is possible that the project area includes one or more breeding territories. Any goshawk nests found during field reconnaissance or unit layout would be protected from harvest by implementing Forest Plan Standards and Guidelines for goshawks. These require the maintenance of an area of not less than 100 acres of productive old-growth forest (if it exists) generally centered over the nest tree or probable nest site, preferably with a multi-layered, closed canopy and providing foraging opportunities for young goshawks. No commercial timber harvest is permitted, and no continuous disturbance likely to result in nest abandonment is permitted within the surrounding 600 feet from March 15 to August 15. Activity restrictions are removed for active nests that become inactive or are unsuccessful.

Northern goshawk is discussed above, and the Alexander Archipelago wolf is discussed in the Wildlife section of this chapter. The following effects analysis is summarized from the project Biological Evaluations and Wildlife Resource Report.

Effects on Species of Interest

Choris Bog Orchid

Botanical surveys discovered populations of the plant in Units 3 and 12. Choris bog orchid appears to be well distributed in the project area, so more populations may be discovered.

Therefore the project may affect Choris bog orchid; however, due to the number of known populations, the project is not likely to disrupt the general distribution of the species.

Mitigation and Monitoring

In the event that any TES species is found during layout, the applicable standards and guidelines would be applied.

Unit-specific mitigation and monitoring requirements are addressed in the unit and road cards.

Transportation

Affected Environment

Access to Cleveland Peninsula and the Emerald Bay project area is by small plane, helicopter and boat. There are no roads in this area.

Forest Road System

National forest roads are classified based on current or anticipated use into one of two maintenance levels. (Roads may also be obliterated or otherwise returned to an unroaded condition after use.) Maintenance levels incorporate traffic service levels, as indicated in the following definitions. Applicable maintenance levels for the project area are:

- Maintenance Level 1 (Traffic Service Level D) - Roads are closed by bridge removal or organic encroachment and are monitored for resource protection. Basic custodial maintenance is performed to perpetuate the road and to facilitate future management activities.
- Maintenance Level 2 (Traffic Service Level C) - Roads are maintained for high-clearance vehicles and monitored for resource protection. Traffic would be minor, consisting of administrative uses.

Environmental Consequences

Road Development

The effects of the transportation system on other resources are considered in the specific resource sections (Fisheries, Soils, Subsistence, Water, and Wildlife). This section focuses on the effects of each alternative on the transportation system, and discusses post-project access management. The Emerald Bay project does not include a proposal for or analysis of a State road corridor or any other transportation or utility system project within the Transportation/Utility System Land Use Designation.

Table Transportation-1 displays the miles of new roads by alternative. New road construction consists of the construction of approximately 6.2 miles of road in Alternative B from a new log transfer facility located in the Emerald Bay area. Alternative D would build 3.8 miles of low-impact road and one land-to-barge log transfer facility.

Table Transportation-1
Miles and Cost of New Road by Alternative

	Alt. A		Alt. B		Alt. C		Alt. D	
	Miles	Cost MM\$	Miles	Cost MM\$	Miles	Cost MM\$	Miles	Cost MM\$
System								
Roads	0	0	6.2	1.08	0	0	3.8	.56

Source: Forest Service, GIS

Access Management

After the completion of harvest activities, roads are managed as necessary to control the type of use and kind of traffic. This is called access management. Road access is managed to prevent damage to the roadway, and to meet objectives for resources such as fish, water quality and wildlife, while maintaining public uses and access for timber management and related activities.

Specific post-harvest traffic strategies for access management are described in Appendix 2 of the Record of Decision (Road Cards) with regard to fisheries, wildlife, and recreation concerns. Access would be eliminated to minimize resource impacts, unless there is an ongoing silvicultural need. In the latter case, other road uses would be less than the traffic of the harvest activity and would be incidental to the ongoing silvicultural activities.

Road use would in general be to “eliminate” rather than “prohibit” road use. Additional measures would be put in place to prohibit ATV access including stormproofing (20 waterbars per mile has been proven to effectively deter ATV use) and formal CFR road closures.

Motor vehicle use is eliminated by physically blocking the road. Where prescribed for long-term intermittent roads, this strategy is achieved by placement of impassable barricades at road entrances. On short-term roads, removal of drainage structures effectively blocks vehicle traffic. Placing roads in storage and removing all drainage structures equates to an Alaska Forest Resource Protection Regulation (AFRPR) status of “closure.”

Efforts to minimize the visual impacts created by logging roads and landings are made during project planning and implementation. Where feasible, roads and landings with a visual quality objective of modification would be located to minimize or eliminate their visibility.

The log transfer facility (LTF) site at Emerald Bay would be used to implement any of the Emerald Bay timber sales under Alternatives B and D. Further discussion on LTFs can be found in the Marine section.

Indirect and Cumulative Effects

The Frosty Bay Timber Sale, which was harvested in 1993, and is located 13 miles north of the Emerald Bay project area in a separate watershed, is the only other ground-disturbing activity which has occurred in the general vicinity of the project area. It harvested 1,184 acres and built 12 miles of road. Since it is geographically isolated from the Emerald Bay project area, no effects are anticipated.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include “reasonably foreseeable future actions” (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to be completed by 2006.

Other harvest planned on National Forest System land in the vicinity of the Emerald Bay project is discussed in the Introduction to this chapter. The Vixen Inlet and Port Stewart Sales could possibly add up to 60 miles of new road to the Cleveland Peninsula.

Mitigations and Monitoring

Mitigation measures for forest resources applicable to road location, construction and/or design are specified on the unit and road cards. These follow the requirements of the Forest Plan, the Best Management Practices, and other direction. Many of these are discussed under the specific resource sections of this chapter. Additional mitigations could include stormproofing, forest road closures, and post-project use monitoring.

A major consideration for roads is the need for construction timing restrictions to minimize potential effects to young fish and fry. The Ketchikan-Misty Fiords Ranger District has developed several options to increase the length of the construction window, based on previous project experience. These include the installation of a log stringer bridge, which allows equipment to cross a creek without any instream construction; for small, non-fishbearing streams, damming and diverting water around the site during culvert placement and rocking; and installing culverts or bridges during low flow periods or when streams are frozen. Forest

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Service, Fish and Wildlife Service and State biologists are consulted to determine appropriate options for each site.

Water

The following discussions and analysis are based on and summarized from the Soil, Floodplain, Riparian, and Wetland Resources Report for the Emerald Bay project (1999), and the Water and Fish Resource Report for the Emerald Bay project area (1999). A Forest-wide treatment of water resources may be found in the Forest Plan EIS, Chapter 3. Applicable water quality direction is included in the Forest Plan, Chapter 4 ("Riparian" and "Soil and Water") and Appendices C, D and J. The unit and road cards contain additional site-specific implementation requirements.

The water-related resources of the Emerald Bay project area include floodplains, riparian areas (including streams, lakes and ponds), and wetlands. The effects of past timber harvest activities on the Emerald Bay drainage are minimal. Floodplains are not proposed for timber harvest or road construction under any of the alternatives. Additional analysis relative to riparian areas may be found in the Fisheries section of this chapter.

Affected Environment

Riparian Management Areas

Riparian areas are lands adjacent to streams, lakes and ponds that are either influenced by groundwater from the water body, or are lands that can directly influence the water quality of a water body when ground disturbing activities occur. Riparian areas can include both upland and wetland areas adjacent to water bodies or streams. Riparian areas also include floodplains and alluvial fans, and areas below the slope-break on V-notches or gorge channels.

Stream process groups are groups of streams that share similar formative processes and stream channel characteristics. Process groups reflect the long-term interaction of geology, landform, climate, and riparian vegetation. The Riparian Standards and Guidelines in the Forest Plan are specific to stream process groups.

Wetlands

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater with a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions" (40 CFR 230.41 (a)(1)). "Frequency and duration" of a groundwater table sufficient to support a prevalence of hydrophytic plants can include areas where the groundwater table is 12 inches below the soil surface for as little as 2 weeks during the growing season. In the Emerald Bay project area, many wetlands are not associated with streams or lakes and include no surface water areas, while others are intimately associated with lakes or ponds. Some wetlands are dependent on ponds and lakes for recharge water, while some are not.

The Emerald Bay project area covers 7,845 acres, of which approximately 71 percent, or 5,557 acres have been mapped as wetlands. Map interpretations include somewhat poorly drained soils on relatively steep slopes that do not always meet the hydrology criteria for classification as wetlands. Field reconnaissance indicated that this mapping overestimates the actual amount of forested wetlands on steeper slopes. The most common wetland types are forested wetlands (1,729 acres), a forested wetland/non-wetland complex (1,779 acres), a forested wetland/short sedge complex (1,346 acres), and alpine shrub/short sedge (244 acres). Past timber harvest has not occurred on wetlands in the project area.

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Table Water-1
Acres of Wetlands by Wetland Habitat Type.

Wetland Habitat	Acres
Alpine Shrub/Short Sedge	244
Short Sedge Wetland	156
Lakes and Ponds ¹	71
Forested Wetland	1,729
Forested Wetland/Short Sedge Complex	1,346
Forested Wetland/Non-Wetland Complex	1,779
Forested Scrub-shrub/Short Sedge Wetlands	232
Total Wetlands	5,557
Forested Non-Wetlands	2,289
Total Acres²	7,846

¹Lakes and ponds are considered deep-water habitats, but are shown here for display purposes.

²Totals may not match due to rounding.

Source: Forest Service, GIS

Wetland value (socioeconomic benefit) is largely dependent on the human use or perceived benefit to be derived from wetland functions (hydrologic, bio-chemical and biologic functions such as erosion control and sediment storage, element recycling and maintenance of water chemistry, and providing terrestrial and aquatic habitats).

The Emerald Bay project area was field reviewed for three high-value wetland habitat types: estuaries, tall sedge fens, and sphagnum bogs. Two of the three high-value wetland types occur on the Emerald Bay project area. There are approximately 16 acres of estuary at the mouth of Emerald Creek. Estuaries do not show up in Table Water-1 because the project area shoreline excludes all of the estuary. Estuaries are regionally recognized as the most important wetland type for the fisheries, wildlife and marine habitat they provide. Forest Plan Standards and Guidelines do not allow timber harvest within 1,000 feet of an estuary.

No tall sedge fens are mapped on the Emerald Bay project area. During project reconnaissance, a small tall sedge fen was identified adjacent to the main stem of Emerald Creek downslope of Unit 11. Tall sedge fens filter large amounts of groundwater and are usually found on the footslope or adjacent to floodplains. Tall sedge fens are included in the Riparian Standard and Guidelines buffer for floodplain process group channel types. The tall sedge fen would be excluded from harvest activity.

No sphagnum bogs are mapped on the Emerald Bay project area and none were identified during project reconnaissance. Sphagnum bogs are very poorly drained organic soils derived from a relatively undecomposed accumulation of sphagnum moss. Sphagnum bogs are extremely wet and often are associated with very small ponds of standing water. Sphagnum bogs are considered high-value wetlands because of their regional scarcity.

Environmental Consequences

Riparian Management Areas

The Forest Plan Standards and Guidelines for riparian areas generally exclude timber harvest from the riparian areas along all Class I, II and III streams (all fish streams and non-fish streams with immediate influence on fish streams). Class IV streams (streams that lack the ability to immediately influence downstream fish habitat and water quality) may be considered for timber harvest. Class IV streams within the project area occur in units receiving both clearcut and partial-cut harvest prescriptions. Specific riparian area protection measures and application of Best Management Practices (BMPs) are documented on the road and unit cards, and in the soil and fisheries resource reconnaissance reports, contained in the project planning record.

The potential for windthrow of trees left within harvest units and riparian areas is addressed in the silvicultural prescriptions on the unit cards. For all units that receive partial-cut harvest, it is anticipated that the residual trees left within harvest units would improve the windfirmness of trees left within Riparian Management Areas.

Wetlands

The high density of wetlands in the Emerald Bay project area makes complete avoidance of wetlands impossible while implementing any of the action alternatives. Many of the remaining forested wetlands on organic soils do not support commercial or economic stands of timber. During Emerald Bay project reconnaissance, proposed timber harvest on poorly drained organic soils was investigated on a case-by-case basis. Large areas of poorly drained organic soils were removed from proposed timber harvest units. Small areas of poorly drained organic soils were considered on a case-by-case basis, and removed from harvest units where appropriate. Of the rest of the forested wetlands, up to 614 acres are considered for timber harvest in the alternatives. The amounts actually proposed for the action alternatives are displayed in Table Water-2.

Harvesting timber from forested wetlands causes a temporary increase in soil moisture until equivalent transpiration and interception surfaces are reestablished. The partial-cut harvest proposed for all units would keep some of the evapotranspiration surfaces intact. Tree growth on forested wetland sites is expected to be slower than on adjacent upland sites.

Table Water-2
Acres of Proposed Harvest on Forested Wetlands by Wetland Habitat Type and Major Watershed by Alternative.

Wetland Habitat	Alternative B acres		Alternative C & D acres	
	Clearcut	Partial Cut	Clearcut	Partial Cut
Forested Wetland	142	14	0	161
Forested Wetland/Short Sedge Complex	35	11	0	49
Forested Wetland/Non-Wetland Complex	101	97	0	228
Forested Scrub-shrub/Short Sedge Wetland Complex	8	26	0	34
Total	286	148	0	472

Source: Forest Service, GIS

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The frequency of wetlands within the project area also makes total avoidance of road construction in wetlands difficult or impossible under Alternatives B and D. Table Water-3 displays the miles and acreages of wetland road construction in Alternatives B and D. Roads through wetlands can affect the flow and reach of water in the wetland. The degree of impact depends largely on the wetland type and the road construction materials and methods. Placement of culverts and the use of coarse rock roads helps to maintain the flow and reach of water. Road location has avoided all high-value wetlands.

Table Water-3
Miles of Proposed Road on Wetlands for Alternatives B and D, and Acres Impacted

Wetland Habitat	Miles	Acres
Forested Wetland	1.4	6.8
Forested Wetland/Short Sedge Complex	2.0	9.7
Forested Wetland/Non-Wetland Complex	0.6	2.9
Total	4.0	19.4

Source: Forest Service, GIS

The road cards discuss specific wetland avoidance, minimization, and mitigation measures, as well as the wetland functions considered in the road location. Any roads constructed in the Emerald Bay project area would be closed after harvest is completed. The new road construction proposed under these alternatives meets the silvicultural exemption requirements of the Corps of Engineers 404 (b) (1) permitting process.

The floodplains of the Emerald Bay drainage would not be affected by planned harvest, and riparian areas would be excluded from timber harvest under Forest Plan Standards and Guidelines. The Emerald Bay drainage has the majority of the project area's high gradient contained streams, and blowdown could occur in up to 5 percent of the riparian areas of these streams adjacent to harvest units (see previous discussion of riparian area effects). Timber harvest on forested wetlands in the Emerald Bay drainage is proposed for all action alternatives. See Table Water-2.

Riparian Areas

Timber harvest proposed under the three action alternatives would leave trees standing below the slope-break on streams within V-notches. To reduce the chance of windthrow, a variety of silvicultural prescriptions are used for stands adjacent to V-notches to better achieve windfirmness of the remaining trees. Partial-cut prescriptions would provide additional windfirmness. However, some windthrow is still likely within some of the riparian areas associated with the high-gradient contained streams. As a worst case, it is anticipated that blowdown could occur in up to 5 percent of riparian forests adjacent to high-gradient contained streams in the future if all suitable timber lands were clearcut, or along about 1.5 miles of streams.

Wetlands

The effects of timber harvest on the beneficial functions of forested wetlands are in most cases expected to be temporary, especially in the case of those harvested using uneven-aged management. Currently there are no roads across wetlands, and the Emerald Bay project could bring that total up to 6.2 miles (under Alternative B).

Indirect and Cumulative Effects

Since the only other ground-disturbing activities to date within the watersheds to which this effects analysis is contained was the selection harvest in the beach buffer which occurred sixty

years ago, and since no additional activities are expected to occur for at least 50 years, indirect and cumulative effects to the water resources are anticipated to be minimal.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include “reasonably foreseeable future actions” (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to occur by 2006.

Additional projects are scheduled in the vicinity or the Emerald Bay project area are discussed in the Introduction to this chapter.

Mitigation and Monitoring

Water-related (including riparian areas and wetlands) resource protection prescriptions and applicable BMPs are listed on unit and road cards and in the fisheries and soil resources reconnaissance reports (all contained in the project planning record). The Beach and Estuary Fringe, Riparian, Soil and Water, and Wetlands Standards and Guidelines of the Forest Plan all apply. The Region 10 Soil and Water Conservation Handbook includes all BMPs applicable in Alaska and provides additional direction for project implementation.

Wildlife

The following discussions and analysis are based on the Wildlife Resources Report for the Emerald Bay project area (1998) which includes the Biological Assessment and Evaluation for the project area (see Threatened, Endangered and Sensitive Species), and a more detailed treatment referenced to the scientific literature. A related wildlife analysis is contained in the Forest Plan EIS, Chapter 3 and Appendix N. Applicable wildlife direction is included in the Forest Plan, Chapters 3 (Land Use Designations) and 4 (Forest-wide Standards and Guidelines) and Appendix K. The unit and road cards for the Emerald Bay project contain additional site-specific implementation requirements.

Affected Environment

The natural vegetation of the Emerald Bay project area is a mosaic of coniferous forest interspersed with alpine tundra, muskeg (bog), shrubland, estuarine, and beach fringe plant communities. A small portion (approximately 14 acres) of the Old-growth Habitat Reserve (OGR) near the estuary was harvested approximately 60 years ago. Single-tree beach harvest has historically taken place in the project area.

There are two small Old-growth Habitat Reserves, in VCU 5260 and 7220, adjacent to the project area, in addition to the medium OGR which makes up most of the Emerald Bay VCU. The location and landscape function of these reserves was evaluated during interagency and interdisciplinary meetings in 1998 and 1999. No changes to the small Old-growth Habitat Reserves were recommended. Specifics on the small reserves are discussed in the Biodiversity and Old Growth section of this chapter.

Management Indicator Species

Management Indicator Species (MIS) are species of vertebrates and invertebrates whose population changes are believed to best indicate the effects of land management activities (USDA Forest Service 1982). MIS are used to assess maintenance of population viability (the ability of a population to sustain itself naturally), biological diversity, and management of game (Forest Plan EIS).

The following have been selected as MIS for this project and will be discussed in this chapter:

Species	Basis for Selection
Sitka black-tailed deer	Important subsistence, game species
American marten	Old-growth habitat; important furbearer

Sitka Black-tailed Deer

The Sitka black-tailed deer was chosen as an MIS because it is an important game and subsistence species and is associated with old-growth forests. Research conducted in Southeast Alaska indicates that high-volume, mature forests at lower elevations are needed to sustain deer populations during severe winters (Schoen et al. 1985; Hanley and Rose 1987; Yeo and Peek 1992). (The Forest Plan divides productive old growth into three volume strata: high, medium, and low. These are defined and discussed on page 3-19 of the Forest Plan EIS.) Large, strong branches of mature stands intercept snow and maintain available forage. Productive, higher-volume stands of old-growth forests support the largest biomass of herb and shrub forage (Alaback 1982). Deer populations are impacted by the combination of deep-snow winters and large amounts of winter range converted to second growth. Snow reduces or eliminates forage availability in young clearcuts. Closed canopy young-growth stands provide little forage in all seasons.

An interagency model (Suring et al. 1992) was developed to evaluate the potential quality of winter habitat for Sitka black-tailed deer. The model was updated for the Forest Plan to use 125 deer/square mile as the multiplier. For the Emerald Bay project, predation was included as a factor in the model and the Forest suitability layer has been updated to reflect field-verified suitability. In addition, the model assigned the same habitat capability scores to partially harvested units as it did clearcut units. This provides a conservative estimate of habitat capability since it seems likely that partially harvested units would have higher habitat values than clearcut units. Model outputs are expressed here as relative values with optimal habitat receiving a score of 1.0 and areas that provide no habitat for deer receiving a score of 0.0. The Emerald Bay project area currently receives a score of 0.26 for deer habitat capability. Because there has been little human- or naturally induced large-scale disturbance, habitat capability for deer has probably remained about the same over the last 100 years.

Marten

The marten was selected as an MIS because of its association with old growth and because it is an important furbearer. According to reports from Alaska Department of Fish and Game, marten populations are considered moderate in the project area (D. Larsen pers. comm.). The Forest Plan (pg. 4-118) identifies high-value marten habitat as high-volume, old-growth forest below 1,500 feet elevation. The project area currently contains 2,108 acres of old-growth forest meeting the criteria for high-value marten habitat.

Marten are easily trapped and can be over-harvested, especially where trapping pressure is heavy and not effectively controlled. This corresponds closely to the availability of road access. Marten densities decrease (due to their susceptibility to over-trapping) when road densities exceed 0.2 miles of road per square mile, and marten densities would be reduced by as much as 90 percent when road densities approach 0.6 miles of road per square mile. There are currently no roads on the project area.

An interagency model (Suring et al. 1992) was developed to evaluate the potential quality of habitat for marten. The model was updated for the Forest Plan using 2.7 marten/square mile as the multiplier. The forest suitability layer has been updated to reflect field-verified suitability. Model outputs are expressed here as relative values with optimal habitat receiving a score of 1.0 and areas that provide no habitat for marten receiving a score of 0.0. The Emerald Bay project area currently receives a score of 0.53 for marten habitat capability. Because there has been little human- or naturally induced large-scale disturbance, habitat capability for marten has probably remained about the same over the last 100 years. Records indicate that historic use of the project area for deer and marten harvest has been low. See Subsistence section.

Environmental Consequences

Effects on Wildlife Habitat

Alternative A, the No-action Alternative, proposes no timber harvest and thus has no effect on existing habitat. The amount of timber harvest for the action alternatives is 599 acres for Alternative B and 625 acres for Alternatives C and D (see Table Wildlife-1). This is 15 percent of the remaining productive old-growth forest in the project area. Under Alternative B, 70 percent of the acres are scheduled for clearcut harvest. This could differ from traditional clearcutting on those acres that contain high-value marten habitat because a minimum of 10-20 percent of the original stand structure of each unit would be retained. The retained trees would most likely be in clumps or "islands" within a unit, or may be more evenly spaced. In either case, the actual opening created would be smaller than the unit size, and mature trees would remain as part of the unit. Under Alternatives C and D, all 10 Emerald Bay units would be selectively harvested and helicopter yarded.

The Forest Plan directs that marten Standards and Guidelines will be applied to harvest occurring in high-risk biogeographic provinces. The Revillagigedo Island and vicinity is identified as a high-risk biogeographic province. The Forest Plan Final EIS (page 3-12)

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identifies the Cleveland Peninsula as being part of the Revillagigedo Biogeographic Province, therefore Marten Standards and Guidelines apply to the Emerald Bay project. All harvest units containing high-value marten habitat are designed to retain at least 10-20 percent canopy closure consistent with the Marten Standards and Guidelines. Harvest objectives for marten (Forest Plan, pp. 4-118 to 4-119) include the following:

- Retain 10-20 percent of the original stand structure.
- An average of at least four large trees/acre.
- An average of at least three large decadent trees/acre.
- Remaining trees should be uniformly distributed throughout the stand, but trees may be clumped for operational concerns or ecological opportunities.
- Retained trees should have a reasonable assurance of windfirmness.
- Retain three pieces/acres of large down trees.

Compared to traditional clearcut harvest, these partial harvest requirements would mitigate some effects to old-growth associated species in that some forest canopy is provided along with large living and decadent (snag) trees. They may not mitigate effects to species preferring a more closed, unfragmented habitat. Although each action alternative includes harvest of forested wildlife habitat, some key habitats are protected by Forest Plan Standards and Guidelines (Table Wildlife-1). These include most Riparian Management Areas (the exception being along Class IV streams), and all beach fringe and estuary fringe habitats. The majority (67 percent) of the project area has been designated as a medium Old-growth Habitat Reserve.

Table Wildlife-1
Direct Effects on Wildlife Habitats (Acres Harvested)

	Alt. A	Alt. B		Alts. C and D	
		Clearcut	Select Cut	Clearcut	Select Cut
Productive Old Growth (POG)	0	421	178	0	625
High-volume POG	0	221	92	0	333
Forested Wetland	0	286	148	0	472

Source: Forest Service, GIS

The previous section discusses changes to wildlife habitats used by project area species, including management indicator species (MIS). This section discusses how those changes affect the potential habitat capability for each MIS.

Sitka Black-tailed Deer

As noted previously, the deer model estimates the capability of habitats to support deer and does not reflect actual populations in the project area. Model outputs are more useful for comparing relative changes by alternative than indicating actual effects to wildlife species. The Emerald Bay action alternatives would decrease deer habitat capability by up to 8 percent (Table Wildlife-2).

Table Wildlife-2
Habitat Capability Changes for Sitka Black-tailed Deer

	1954	1998	Alt. A	Alt. B	Alt. C	Alt. D
HSI Score	.26	.26	.26	.24	.24	.24
% Change		0	0	-8	-8	-8

Source: Interagency Deer Model, M. Brown

Marten

Timber harvest units in the action alternatives would retain overstory structure consistent with Marten Standard and Guidelines. All harvest treatment on high-value marten habitat would retain at least 10-20 percent canopy closure. Units which fall into the high-volume strata and below 1,500 feet elevation are considered high-value marten habitat. Even with partial-cut harvest, these units would fall out of the high-value habitat component since they are no longer high-volume stands. Thus any timber harvest in high-value marten habitat would reduce that habitat accordingly. As noted previously, the marten model estimates the capability of habitats to support marten and does not reflect actual populations in the project area. Model outputs are more useful for comparing relative changes by alternative than indicating actual effects to wildlife species. The Emerald Bay action alternatives would decrease marten habitat capability by about 10 percent (Table Wildlife-3).

The amount of timber harvest in high-value marten habitat is similar under all action alternatives. Alternative B harvests 312 acres of high-value marten habitat, which represents a 15 percent reduction in high-value marten habitat within the project area. Alternatives C and D harvest 336 acres (16 percent) of the high-value marten habitat within the project area. Under Alternative B, 220 acres of high-value marten habitat would be clearcut harvested and 92 would be selectively harvested. Under Alternatives C and D, 336 acres of high-value marten habitat would be selectively harvested.

Table Wildlife-3
Habitat Capability Changes for Marten

	1954	1998	Alt. A	Alt. B	Alt. C	Alt. D
HSI Score	.53	.53	.53	.487	.47	.47
% Change		0	0	-10	-11	-11

Source: Interagency Deer Model, M. Brown

Brown Bear

Brown bears are unlikely to be greatly effected by this project because: 1) no important brown bear foraging sites were identified in the project area, 2) nearly all of the anadromous fish habitat occurs within the Old-growth Reserve, thus receiving the protection measures identified in the Forest Plan Brown Bear Riparian Standards and Guidelines, 3) the anadromous fish habitat that occurs outside the OGR does not provide foraging habitat for bears, and, 4) the proposed road through the OGR is greater than 500 feet from any anadromous stream.

Bald Eagle

The Bald Eagle Protection Act provides for special management for bald eagles. An Interagency Agreement established with the U.S. Fish and Wildlife Service requires a 330-foot habitat protection buffer around bald eagle nests. The proposed road would be within 330 feet of bald eagle nest tree #081. Road construction and logging activities under Alternatives B and D, or multiple helicopter trips under Alternative C within this buffer will require a variance from the Agreement from the U.S. Fish and Wildlife Service. This variance will be requested as necessary to support the public investment associated with the project.

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Red-Tailed Hawk

During the 2000 field season, field crews observed concentrated activity by unidentified raptors in Unit 10. A survey by wildlife biologists in August 2000 resulted in finding an active red-tailed hawk nest in Unit 10. This nest would be protected with a forested 600-foot windfirm buffer. Disturbance would be prevented during the active nesting season (generally March 1 to July 31). Annual monitoring would be conducted for at least 2 years to determine nest activity. If the nest remains inactive for 2 consecutive years, protection measures may be removed.

Other species

The effects of Alternatives C and D to other species of wildlife such as mountain goats and wolves are expected to be negligible, since populations of these species are small and scattered on the Cleveland Peninsula and management impacts to both species are primarily associated with roads. Alternative C proposes no roads, while Alternative D proposes road closure methods sufficient to alleviate travel and animal movement concerns. The road proposed in Alternative B could cause additional impacts.

Indirect and Cumulative Effects

The Frosty Bay Timber Sale, which was harvested in 1993, and is located 13 miles north of the Emerald Bay project area in a separate WAA is the only other ground-disturbing activity which has occurred in the general vicinity of the project area. The geographic and large land distance separating these projects make it unlikely that effects associated with the Frosty Bay sale would occur.

Reasonably Foreseeable Future Actions

An analysis of cumulative effects must also include "reasonably foreseeable future actions" (40 CFR 1508.7). For the Emerald Bay project action alternatives, harvest is scheduled to occur by 2006.

Other harvest is planned on National Forest System land to the north of the Emerald Bay project. This is discussed in the Introduction to this chapter.

Table Wildlife-4 shows the possible "worst-case" cumulative effects on forest habitat if all currently unharvested suitable and available timber lands (957 acres) were harvested over the next 5 decades. Total productive old-growth forest remaining would be approximately 4,317 acres. This is 82 percent of the productive old-growth forest originally in the project area (prior to 1954).

Table Wildlife-4 assumes a worst-case scenario as it does not account for the uneven-aged prescriptions proposed for Alternatives C and D.

Table Wildlife-4
Cumulative Effects to Wildlife: "Worst Case" Habitat Components in 2054

Year	Productive Old Growth (POG) (acres)	High Volume POG (acres)	Deer Habitat Capability (# of Deer)	Open Road Density (miles per sq. mi)
1954	5,274	2,375	.26	0.0
2054	4,307	1,948	.23	0.0 ¹
% Change	-18%	-18%	-10%	

¹Assumes all road constructed would be closed after project completion.
Source: Forest Service GIS/Interagency Deer Model, M. Brown

Even if the remainder of the suitable and available timber in the project area were clearcut by 2054, habitat capability for deer would decline to 0.23, a reduction of 10 percent from the current level. This would provide habitat for about 28 deer per square mile, well above the 13 per square mile level recommended as the minimum for providing prey for wolves. Although 6.2 miles of road would be constructed under Alternative B and 3.8 miles under Alternative D, open road density would remain at 0.0 miles of road per square mile because all roads would be closed after project completion.

Since marten populations are closely correlated with open road density, closing all roads following project completion should minimize impacts to American marten under the roaded Alternatives C and D.

Mitigation and Monitoring

The primary wildlife direction is included in the Forest Plan, Chapters 3 (Land Use Designations, including Old-growth Habitat) and 4 (the Forest-wide Standards and Guidelines), and Appendix K. The unit and road cards for the Emerald Bay project contain additional site-specific implementation requirements. After project completion, all roads would be closed.



Chapter 4

Lists

Chapter 1

1.1

Chapter 4

Lists

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The following is a list of contributors to the Emerald Bay Environmental Impact Statement. Other Forest Service employees contributed to the completion of this document through their assistance in support functions. Their help is greatly appreciated.

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A copy of the Emerald Bay Final EIS and Record of Decision was sent to the following agencies, organizations, businesses, public officials, municipalities and IRA tribes. These parties either requested a copy of the EIS during the scoping process, at some other time in the NEPA process, are part of the Forest Service's mandatory mailing list (Forest Service Handbook 1909.15, Sections 23.2 and 63.1) or are recognized municipalities or IRA tribes potentially affected by, or interested in, the Emerald Bay project.

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 Ketchikan Indian Corporation, Merle Hawkins, Subsistence Chairman, Ketchikan, AK
 Ketchikan Indian Corporation, Robert Sanderson Jr., Ketchikan, AK
 Ketchikan Outdoor Recreation and, Jim Mitchell, Ketchikan, AK
 Ketchikan Public Library, Ketchikan, AK
 Klawock Public Library, Klawock, AK
 Koncor Forest Products Co., Dr. Geoffrey McNaughton, Anchorage, AK
 Kootznoowoo Inc., Juneau, AK
 Metlakatla Community School Library, Metlakatla, AK
 Metlakatla Indian Community, Mayor Solomon Atkinson, Metlakatla, AK
 Meyers Chuck Community Assn., Robert & Jacquelyne Hunley, Meyers Chuck, AK
 Meyers Chuck Community Assn., Debbie Johnson, Meyers Chuck, AK
 National Marine Fisheries Service, Regional Administrator, Juneau, AK
 National Park Service, Anchorage, AK
 Natural Resources Defense Council, Nathaniel Lawrence, Senior Atty., Olympia, WA
 Naukati School, Ketchikan, AK
 Office of Program Review & Education, Adv. Council on Hist. Preservation, Washington, DC
 Organized Village of Saxman, Joe Williams, President, Ketchikan, AK
 Pacific Log & Lumber, Ltd., Frank Age & Steve Seley, Ketchikan, AK
 Parametrix, Inc., Pam Gunther, Kirkland, WA
 Petersburg Public Library, Petersburg, AK
 Polk Inlet School, Ketchikan, AK
 Port Alexander School, Port Alexander, AK
 Port Protection School, Ketchikan, AK
 Prince of Wales Comm. Advisory Committee, Ginny Tierney, Thorne Bay, AK
 Rayonier Inc., Eric Nichols, Ketchikan, AK
 Revilla High School, Janet Landis, Ketchikan, AK
 Schoenbar Junior High School, Ketchikan, AK
 SE AK Reg. Subsistence Council, William C. Thomas, Chairman, Ketchikan, AK
 Sealaska Corporation, Juneau, AK
 Sealaska Timber Corporation, Bob Girt, Ketchikan, AK
 Sierra Club Legal Defense Fund, Inc., Eric Jorgensen, Juneau, AK
 Silver Bay Logging, Dick Buhler, Wrangell, AK
 Silver Bay Logging, Jerry Kilanowski, Wrangell, AK
 Southeast Alaska Conservation Council, Matthew Davidson, Juneau, AK
 Southeast Alaska Conservation Council, Aurah Landau, Juneau, AK

Southeast Alaska Conservation Council, Marc Wheeler, Juneau, AK
 Southeast Conference, Berne Miller, Ex. Director, Juneau, AK
 Southeast Stevedoring Corporation, Cliff Skillings, Ketchikan, AK
 Southeast Stevedoring Corporation, Cliff Taro, Ketchikan, AK
 Southwest Center for Biology, Cathy Siegel, Berkley, CA
 Tenakee Springs ADF&G Advisory Committee, Joan & Sam McBeen, Tenakee Springs, AK
 The Wilderness Society, Nicole Whittington-Evans, Anchorage, AK
 Thorne Bay City, Kim Kain, Thorne Bay, AK
 Thorne Bay Community Library, Thorne Bay, AK
 Thorne Bay School, Thorne Bay, AK
 Tongass Conservation Society, Elmer Makua, Ketchikan, AK
 URS Corporation, A. Dave Every, Seattle, WA
 US Army Corps of Engineers, Ralph Thompson, Field Office Manager, Juneau, AK
 US Army Engineer District, Michiel E. Holley, Unit Coordinator, Anchorage, AK
 US Army Engineering, Portland, OR
 US Coast Guard, Environmental Impact Branch, Washington, DC
 US Dept. of Energy, Office of Env. Compliance, Washington, DC
 US Dept. of Housing & Urban Development, Environmental Officer, Anchorage, AK
 US Dept. of Transportation, Asst. Secretary for Policy, Washington, DC
 US Environmental Prot. Agency, EIS Review Coordinator, Seattle, WA
 US Environmental Prot. Agency, Office of Federal Activities, EIS Filing Section, Washington, DC
 US Naval Observ., Naval Oceanography Division, Washington, DC
 US Navy, Office of Chief of Navy Operations, Washington, DC
 US House of Representatives, Hon. Don Young, Washington, DC
 US Senate, Senator Frank Murkowski, Anchorage, AK
 US Senate, Senator Ted Stevens, Juneau Office, Juneau, AK
 USDA APHIS PPD/EAD, Deputy Director, Riverdale, MD
 USDA Forest Service, Craig Ranger District, TNF, Craig, AK
 USDA Forest Service, Petersburg Ranger District, TNF, Petersburg, AK
 USDA Forest Service, Thorne Bay Ranger District, TNF, Thorne Bay, AK
 USDA Forest Service, Ketchikan Ranger District, TNF, Ketchikan, AK
 USDA Forest Service, Sitka Ranger District, TNF, Sitka, AK
 USDA Forest Service, Wrangell Ranger District, TNF, Wrangell, AK
 USDA Forest Service, Hoonah Ranger District, TNF, Hoonah, AK
 USDA Forest Service, Yakutat Ranger District, TNF, Yakutat, AK
 USDA Forest Service, Juneau Ranger District, TNF, Juneau, AK
 USDA Forest Service, Admiralty Ranger District, TNF, Admiralty, AK
 USDA Forest Service, Tongass Nat. Forest, Petersburg S.O., Petersburg, AK
 USDA Forest Service, Tongass Nat. Forest, Sitka S.O., Sitka, AK
 USDA Forest Service, Tongass Nat. Forest, Ketchikan S.O., Ketchikan, AK
 USDA Forest Service, Director, Regional Office, Juneau, AK
 USDA Forest Service, Winifred Weber, Regional Office, Juneau, AK
 USDA Forest Service, Chugach Nat. Forest, Anchorage, AK
 USDA Forest Service, Director, Ecosystem Mgmt. Coord., Washington, DC
 USDA Nat. Resources Conservation Svc., National Env. Coordinator, Washington, DC
 USDA Natl. Agricultural Library, Head, Acqui. and Serials Branch, Beltsville, MD
 USDA Office of Civil Rights, Policy and Planning, Washington, DC
 USDA OPA Publications Stockroom, Washington, DC
 USDI Bureau of Land Management, Anchorage, AK
 USDI Fish & Wildlife Service, Dave Allen, Reg. Director, Anchorage, AK
 USDI Fish & Wildlife Service, Ed Grossman, Juneau, AK
 USDI Office of Env. Policy & Compliance, Director, Washington, DC
 USDI Office of Env. Policy & Compliance, Pamela Bergmann, Reg. Env. Officer, Anchorage, AK
 Wrangell Advisory Committee, Robert M. Rooney, Wrangell, AK
 Wrangell Cooperative Association, John Feller, Chairman, Wrangell, AK
 Wrangell Public Library, Wrangell, AK
 Wrangell Resource Council, Joel Hanson, President, Wrangell, AK

Glossary

Access

The opportunity to approach, enter, and make use of public lands.

Access Management

Acquiring rights and developing and maintaining facilities needed by people to get to and move through public lands (physical attributes).

Alaska National Interest Lands Conservation Act (ANILCA)

Passed by Congress in 1980, this legislation designated 14 National Forest Wilderness areas in Southeast Alaska. The Alaska National Interest Lands Conservation Act of December 2, 1980, Public Law 96-487, 96th Congress, 94 Stat. 2371-2551, Section 810 requires evaluations of subsistence impacts before changing the use of these lands.

Alaska Native Claims Settlement Act (ANCSA)

Public Law 92-203, 92nd Congress, 85 Stat. 2371-2551. Approved December 18, 1971, Native Claims Settlement Act (ANCSA). ANCSA provides for the settlement of certain land claims of Alaska Natives and for other purposes.

Alluvial Fan

A cone-shaped deposit of organic and mineral material made by a stream where it runs out onto a level plain or meets a slower stream.

Alpine

Parts of mountains above tree growth and/or the organisms living there.

Alternative

One of several policies, plans, or projects proposed for decision making.

Anadromous Fish

Anadromous fish (such as salmon, steelhead, and sea-run cutthroat trout) spend part of their lives in freshwater and part of their lives in saltwater.

Anadromous Species

One whose individuals are born in freshwater but migrate to and feed in the sea before returning to freshwater to breed.

Background

The distant part of a landscape. The seen or viewed area located from 3 or 5 miles to infinity from the viewer. (See "Foreground" and "Middleground".)

Beach Fringe

The area inland from salt water shorelines, which is typically forested.

Best Management Practice (BMP)

Practices used for the protection of water quality. BMPs are designed to prevent or reduce the amount of pollution from nonpoint sources or other adverse water quality impacts while meeting other goals and objectives. BMPs are standards to be achieved, not detailed or site-specific prescriptions or solutions. BMPs as defined in the USDA Forest Service Soil & Water Conservation Handbook are mandated for use in Region 10 under the Tongass Timber Reform Act.

Biological Diversity (Biodiversity)

The variety of life in all its forms and at all levels. This includes the various kinds and combinations of: genes; species of plants, animals, and microorganisms; populations; communities; and ecosystems. It also includes the physical and ecological processes that allow all levels to interact and survive. The most familiar level of biological diversity is the species level, which is the number and abundance of plants, animals, and microorganisms.

Blowdown

See windthrow.

Board Foot (BF)

A unit of wood 12" X 12" X 1". One acre of commercial timber in Southeast Alaska on the average yields 28,000-34,000 board feet per acre (ranging from 8,000-90,000 board feet per acre). One million board feet (MMBF) would be the volume of wood covering 1 acre 2 feet thick. One million board feet yields approximately enough timber to build 120 houses or 75,555 pounds of dissolving pulp.

Buffer

An area around a resource where timber harvest is restricted or prohibited. For example, the Tongass Timber Reform Act (TTRA) requires that timber harvest be prohibited in an area no less than 100 feet on each side of all Class I streams and Class II streams which flow directly into Class I streams. This 100-foot area is known as a "stream buffer".

Capability

An evaluation of a resource's inherent potential for use.

Clearcut

The harvesting in one cut of all trees on an area. The area harvested may be a patch, strip, or stand large enough to be mapped or recorded as a separate class in planning for sustained yield. Clearcut size on the Tongass National Forest is limited to 100 acres, except for specific conditions noted in the Alaska Regional Guide.

Code of Federal Regulations (CFR)

A codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government.

Commercial Forest Land (CFL)

Productive Forest land that is producing or capable of producing crops of industrial wood and is not withdrawn from timber utilization by statute or administrative regulation. This includes areas suitable for management and generally capable of producing in excess of 20 cubic feet per acre of annual growth or in excess of 8,000 board feet net volume per acre. It includes accessible and inaccessible areas.

Normal CFL: Timber that can be economically harvested with locally available logging systems. Composed of two categories:

Standard: Timber that can be economically harvested with locally available logging systems, such as highlead or short-span skyline.

Special: Timber that is in areas where special consideration is needed to protect other resources but can be harvested with locally available logging systems.

Non-standard CFL: Timber that cannot be harvested with locally available logging systems and would require the use of other logging systems such as helicopter or long-span skyline.

Commercial Thinning

Thinning a stand where the trees to be removed are large enough to sell.

Connectivity

A measure of the extent that forest areas between or outside reserves provide habitat for breeding, feeding, dispersal, and movement.

Corridor

Connective links of certain types of vegetation between patches of suitable habitat which are necessary for certain species to facilitate movement of individuals between patches of suitable habitat. Also refers to transportation or utility rights-of-way.

Cover

Refers to trees, shrubs, or other landscape features that allow an animal to partly or fully conceal itself.

Critical Habitat

Specific terrain within the geographical area occupied by threatened or endangered species. Physical and biological features that are essential to conservation of the species and which may require special management considerations or protection are found in these areas.

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Crown

The tree canopy. The upper part of a tree or woody plant that carries the main branch system and foliage.

Cubic Foot (CF)

Equivalent to a cube of wood with 1-foot sides. The cubic foot volume is a measure of the total sound wood in a tree and is a more accurate depiction of wood volume than the board foot measure.

Cumulative Effects

The impacts on the environment resulting from additional incremental impacts of past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions occurring over time.

Deer Winter Habitat

Locations that provide food and shelter for Sitka black-tail deer under moderately severe to severe winter conditions.

Developed Recreation

Recreation that requires facilities that, in turn, result in concentrated use of an area. Facilities in these areas might include roads, parking lots, picnic tables, toilets, drinking water, and buildings.

Dissolved Oxygen

The amount of free (not chemically combined) oxygen in water.

Diversity

The distribution and abundance of different plant and animal communities and species within the area controlled by the modified 1997 Forest Plan.

Draft Environmental Impact Statement (Draft EIS)

A statement of environmental effects for a major Federal action which is released to the public and other agencies for comment and review prior to a final management decision. Required by Section 102 of the National Environmental Policy Act (NEPA).

Eagle Nest Tree Buffer Zone

A 330-foot radius around eagle nest trees established in an agreement between the U.S. Fish and Wildlife Service and the Forest Service.

Ecosystem

A community of organisms and its physical setting. An ecosystem, whether a fallen log or an entire watershed, includes resident organisms, non-living components such as soil nutrients, inputs such as rainfall, and outputs such as organisms that disperse to other ecosystems.

Effects

Effects, impacts, and consequences as used in this environmental impact statement are synonymous. Effects may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historical, cultural, economic, or social, and may be direct, indirect, or cumulative.

Direct Effects: Results of an action occurring when and where the action takes place.

Indirect Effects: Results of an action occurring at a location other than where the action takes place and/or later in time, but in the reasonably foreseeable future.

Cumulative Effects: See Cumulative Effects.

Endangered Species

Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as Endangered in accordance with the 1973 Endangered Species Act. See also Threatened Species, Sensitive Species.

Erosion

The wearing away of the land surface by running water, wind, ice, gravity, or other geological activities.

Estuary

For the purpose of this EIS process, estuary refers to the relatively flat, intertidal, and upland areas generally found at the heads of bays and mouths of streams. They are predominately mud and grass flats and are unforested except for scattered spruce or cottonwood.

Even-aged Management

The application of a combination of actions that result in the creation of stands in which trees of essentially the same age grow together. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of that age of the stand at harvest rotation age. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands.

Executive Order

An order or regulation issued by the President or some administrative authority under his or her direction.

Final Environmental Impact Statement (Final EIS)

The final version of the statement of environmental effects required for major Federal actions under Section 102 of the National Environmental Policy Act. It is a revision of the draft environmental impact statement (Draft EIS) to include public and agency responses to the draft. The decision maker chooses which alternative to select from the Final EIS, and subsequently issues a Record of Decision (ROD).

Floodplain

That portion of a river valley, adjacent to the river channel, which is covered with water when the river overflows its banks at flood stages.

Foreground

The stand of trees immediately adjacent to a scenic area, recreation facility, or forest highway; area located less than 1/4 mile from the viewer. See also Background and Middleground.

Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA)

Amended in 1976 by the National Forest Management Act. See RPA Assessment and Program.

Forest or Forest Land

National Forest lands currently supporting or capable of supporting forests at a density of 10 percent crown closure or better. Includes all areas with forest cover, including old growth and second growth, and both commercial and non-commercial forest land.

Forest Plan

The Tongass Land Management Revision, signed in 1997, revised 1999. This is the 10-year land allocation plan for the Tongass National Forest that directs and coordinates planning, the daily uses, and the activities carried out within the Forest.

Fragmentation

An element of biological diversity that describes the natural condition of habitats in terms of the size of discrete habitat blocks or patches, their distribution, the extent to which they are interconnected, and the effects of management on these natural conditions. Also the process of reducing the size and connectivity of stands within a forest.

Forested Wetland

A wetland whose vegetation is characterized by an overstory of trees that are 20 feet or taller.

FSH

Forest Service Handbook.

FSM

Forest Service Manual.

Geographic Information System (GIS)

An information processing technology to input, store, manipulate, analyze, and display spatial and attribute data to support the decision-making process. It is a system of computer maps with corresponding site-specific information that can be electronically combined to provide reports and maps.

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Geomorphology

The study of the forms of the land surface and the processes producing them. Also the study of the underlying rocks or parent materials and the landforms present which were formed in geological time.

Groundwater

Water within the earth that supplies wells and springs.

Guideline

A preferred or advisable course of action or level of attainment designed to promote achievement of goals and objectives.

Habitat

The sum total of environmental conditions of a specific place occupied by an organism, population, or community of plants and animals.

Habitat Capability

The number of healthy animals that a habitat can sustain. Used in wildlife models to calculate rough population estimates for management indicator species.

Heritage Resources (Cultural Resources)

Historic or prehistoric objects, sites, buildings, structures, and their remains, resulting from past human activities.

Interdisciplinary Team (IDT)

A group of people with different backgrounds assembled to research, analyze, and write a project Environmental Impact Statement. The team is assembled out of recognition that no one scientific discipline is sufficiently broad enough to adequately analyze a proposed action and its alternatives.

Issue

A point, matter, or section of public discussion or interest to be addressed or decided.

Land Allocation

The decision to use land for various resource management objectives to best satisfy the issues, concerns and opportunities and meet assigned forest output targets.

Land Use Designation

A defined area of land specific to which management direction is applied in the modified 1997 Forest Plan.

Landslides

The moderately rapid to rapid down slope movement of soil and rock materials that may or may not be water-saturated.

Large Woody Debris

Any large piece of relatively stable woody material having a diameter of at least 4 inches and a length greater than 3 feet that intrudes into the stream channel. Also called Large Organic Debris (LOD).

Log Transfer Facility (LTF)

A facility that is used for transferring commercially-harvested logs to and from a vessel or log raft, or the formation of a log raft. It is wholly or partially constructed in waters of the United States and location and construction are regulated by the 1987 Amendments to the Clean Water Act. Formerly termed "terminal transfer facility" or "log dump".

Logging Systems

Long-span cable: Single span cable yarding system with a long corner exceeding 1000 feet, horizontal distance. Typically, this includes a variety of live skyline systems, including standing skylines and running skylines where reach is long.

Short-span cable: All cable systems with a longer corner of not more than 1000 feet, horizontal distance. Typically, this includes running skyline with a carriage and chokers, running skyline with grapple, live skyline with gravity return, and highlead.

Shovel: The process of forwarding logs from stump to landing by repeated swinging of logs by a hydraulic excavator-based log loader.

Helicopter: Flight path cannot exceed 40 percent downhill or 30 percent uphill; landings must be selected so there is adequate room for the operation and so that the helicopter can make an upwind approach to the drop zone.

MBF

A thousand board feet net sawlog and utility volume.

MMBF

A million board feet net sawlog and utility volume.

Management Indicator Species (MIS)

Species selected in a planning process that are used to monitor the effects of planned management activities on viable populations of wildlife and fish, including those that are socially or economically important.

Management Prescriptions

Method of classifying land uses presented in the 1997 Tongass Land and Resource Management Plan (TLRMP (modified 1999)). Replaces the land use designations originally presented in the Forest Plan.

Management Requirement

Standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, and soil and water and diversity, to be met in accomplishing National Forest System goals and objectives (see 36 CFR 219.17).

Mass Movement

The downslope movement of a block or mass of soil. This usually occurs under conditions of high soil moisture and does not include individual soil particles displaced as surface erosion.

McGilvery (Soil Series)

Soil series which represents the only well-drained organic soil found in the Ketchikan Area. It is composed of a thin surface layer (less than 8 inches deep) of organic material overlying bedrock. These soils are associated with cliffs and rock outcrops, and are sensitive to disturbance.

Memorandum of Understanding (MOU)

A legal agreement between the Forest Service and others agencies resulting from consultation between agencies that states specific measures the agencies will follow to accomplish a large or complex project. A memorandum of understanding is not a fund obligating document.

Microclimate

The temperature, moisture, wind, pressure, and evaporation (climate) of a very small area that differs from the general climate of the larger surrounding area.

Middleground

The visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly for the landscape; area located from 1/4 to 5 miles from the viewer. See also Foreground and Background.

Mineral Soils

Soils consisting predominately of, and having its properties determined by, mineral material.

Mining Claims

A geographic area of the public lands held under the general mining laws in which the right of exclusive possession is vested in the locator of a valuable mineral deposit.

Mitigation

Measures designed to counteract environmental impacts or to make impacts less severe. These may include: avoiding an impact by not taking a certain action or part of an action; minimizing an impact by limiting the degree or magnitude of an action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations

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during the life of the action; or compensating for the impact by replacing or providing substitute resources or environments.

Mixed Conifer

In Southeast Alaska, mixed conifer stands usually consist of western hemlock, mountain hemlock, Alaska yellowcedar, Western redcedar, and Sitka spruce species. Shore pine may occasionally be present depending on individual sites.

Model

A representation of reality used to describe, analyze, or understand a particular concept. A model may be a relatively simple qualitative description of a system or organization, or a highly abstract set of mathematical equations. A model has limits to its effectiveness, and is used as one of several tools to analyze a problem.

Monitoring

A process of collecting information to evaluate whether or not objectives of a project and its mitigation plan are being realized. Monitoring can occur at different levels: to confirm whether mitigation measures were carried out in the manner called for, to determine whether the mitigation measures were effective, or to validate whether overall goals and objectives were appropriate. Different levels call for different methods of monitoring.

Multiple-aged Stands

An intermediate form of stand structure between even and uneven-aged stands. These stands generally have two or three distinct tree canopy levels occurring within a single stand.

Multiple Use

The management of all the various renewable resources of the National Forest System to be used in the combination that will best met the needs of the American people.

Muskeg

In Southeast Alaska, a type of bog that has developed over thousands of years in depressions or flat areas on gentle to steep slopes. Also called peatlands.

National Environmental Policy Act (NEPA) of 1969

An Act to declare a national policy which will encourage productive and enjoyable harmony between humankind and the environment, to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, to enrich the understanding of the ecological systems and natural resources important to the Nation, and to establish a Council on Environmental Quality (The Principal Laws Relating to Forest Service Activities, Agricultural Handbook 453. USDA Forest Service, 359 pp.).

National Forest Management Act (NFMA)

A law passed in 1976 as an amendment to the Forest and Rangeland Renewable Resources Planning Act requiring the preparation of Regional Guides and Forest Plans and the preparation of regulations to guide that development.

Native Selection

Application by Native corporations and individuals to a portion of the USDI Bureau of Land Management for conveyance of lands withdrawn in fulfillment of Native entitlements established under ANSCA.

No-action Alternative

The most likely condition expected to exist in the future if current management direction were to continue unchanged.

Non-commercial Forest Land

Land with more than 10 percent cover of commercial tree species but not qualifying as Commercial Forest Land.

Non-commercial species

Species that have no economic values at this time nor anticipated timber value within the near future.

Notice of Intent (NOI)

A notice printed in the Federal Register announcing that an Environmental Impact Statement will be prepared. The NOI must describe the proposed action and possible alternatives, describe the agency's proposed scoping process, and provide a contact person for further information.

Objectives

The precise steps to be taken and the resources to be used in achieving goals.

Offering

A Forest Service specification of timber harvest units, subdivisions, roads, and other facilities and operations to meet the requirements of a contract.

Old Growth

Ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of forest stand development that typically differ from earlier stages in a variety of characteristics which may include larger tree size, higher composition, and different ecosystem function. The structure and function of an old-growth ecosystem will be influenced by its stand size and landscape position and context.

Organic Soils

Soils that contain a high percentage (generally greater than 20 to 30 percent) of organic matter throughout the soil depth.

Patch

A non-linear surface area differing in appearance from its surroundings.

Payments to States

A fund consisting of approximately 25 percent of the gross annual timber receipts received by the National Forests in that State. This is returned to the State for use on roads and schools.

Planning Area

The area of the National Forest System controlled by a decision document.

Planning Record

A system that records decisions and activities that result from the process of developing a forest plan, revision, or significant amendment.

Plant Communities

Aggregations of living plants having mutual relationships among themselves and to their environment. More than one individual plant community.

Population Viability

Ability of a population to sustain itself.

Present Net Value (PNV)

The difference between the benefits and costs associated with the alternatives.

Process Group

A combination of similar channel types based on major differences in landform, gradient, and channel shapes.

Productive Old Growth (POG)

Old-growth forest capable of producing at least 20 cubic feet of wood fiber per acre per year, or having greater than 8,000 board feet per acre.

Public Participation

Meetings, conferences, seminars, workshops, tours, written comments, responses to survey questionnaires, and similar activities designed and held to obtain comments from the public about Forest Service activities.

Receipts

Those priced benefits for which money will actually be paid to the Forest Service: recreation fees, timber harvest, mineral leases, and special use fees.

Record of Decision

A document separate from but associated with an Environmental Impact Statement which states the decision, identifies all alternatives, specifying which were environmentally preferable, and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not.

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Reforestation

The natural or artificial restocking of an area with trees.

Regeneration

The process of establishing a new crop of trees on previously-harvested land.

Regional Forester

The Forest Service official responsible for administering a single region.

Regional Guide

The guide developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974 as amended. It guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands within a given region.

Resident Fish

Fish that are not anadromous and that reside in freshwater on a permanent basis. Resident fish include non-anadromous Dolly Varden char and cutthroat trout.

Resource Values

The tangible and intangible worth of forest resources.

Responsible Official

The Forest Service employee who has the delegated authority to make a specific decision.

Revegetation

The re-establishment and development of a plant cover. This may take place naturally through the reproductive processes of the existing flora or artificially through the direct action of reforestation or reseeding.

Riparian Area

Area with distinctive resource values and characteristics that contain elements of aquatic and riparian ecosystems, which can be geographically delineated.

Roads

Classified: Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access, including State roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service (36 CFR 212.1).

Temporary: For National Forest timber sales, temporary roads are constructed to harvest timber on a one-time basis. These logging roads are not considered part of the permanent forest transportation network and have stream crossing structures removed, erosion measures put into place, and the road closed to vehicular traffic after harvest is completed.

Roadless Area

An area of undeveloped public land within which there are no improved roads maintained for travel by means of motorized vehicles intended for highway use.

Rotation

The planned number of years (approximately 100 years in Alaska) between the time that a forest stand is regenerated and its next cutting at a specified stage of maturity.

Rotation Age

The age of a stand when harvested at the end of a rotation.

RPA Assessment and Program

The RPA Assessment is prepared every 10 years and describes the potential of the nation's forests and rangelands to provide a sustained flow of goods and services. The RPA Program is prepared every 5 years to chart the long-term course of Forest Service management of the National Forests, assistance to State and private landowners, and research. They are prepared in response to Sections 3 and 4 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) (16 U.S.C. 1601).

Scheduled Timber Harvests

Timber harvests done as part of meeting the allowable sale quality.

Scoping Process

Early and open activities used to determine the scope and significance of a proposed action, what level of analysis is required, what data is needed, and what level of public participation is appropriate. Scoping focuses on the issues surrounding the proposed action, and the range of actions, alternatives, and impacts to be considered in an EA or an EIS.

Scrub-Shrub Wetland

Wetlands dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. In Southeast Alaska this includes forested lands where trees are stunted because of poor soil drainage.

Second Growth

Forest growth that has become established following some disturbance such as cutting, serious fire, or insect attack; even-aged stands that will grow back on a site after removal of the previous timber stand.

Sediment

Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface.

Seed Tree

Small number of seed-bearing trees left singly or in small groups after timber harvest to provide seed for regeneration of the site.

Selective Harvest

The annual or periodic removal of trees (particularly the mature), individually or in small groups from an uneven-aged forest to achieve the balance among diameter classes needed for sustained yields, and in order to realize the yield, and establish a new crop of irregular constitution. Note: The improvement of the forest is a primary consideration.

Sensitive Species

Plant and animal species which are susceptible or vulnerable to activity impacts or habitat alterations. Those species that have appeared in the Federal Register as proposed for classification or are under consideration for official listing as endangered or threatened species, that are on a non-official State list, or that are recognized by the Regional Forester as needing special management to prevent placement on Federal or State lists.

Shelterwood Cutting

A harvest method in which most of the trees are removed in an initial entry and some trees are left to naturally reseed the area and provide protection to new seedlings that establish on the site. A second entry is conducted later to remove the remaining trees.

Silviculture

The science of controlling the establishment, composition, and growth of forests.

Smolt

Young silvery-colored salmon or trout which move from freshwater streams to saltwater.

Snag

A standing dead tree, usually greater than 5 feet tall and 6 inches in diameter at breast height.

Soil Productivity

The capacity of a soil, in its normal environment, to produce a specific plant or sequence of plants under a specific system of management.

Soil Quality Standards

Standards that are a combination of 1) "threshold" values for severity of soil property alteration, or significant change in soil properties conditions, and 2) a real extent of disturbance.

Split Yarding

The process of separating the direction of timber harvest yarding into opposite directions.

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Stand (Tree Stand)

An aggregation of trees occupying a specific area and sufficiently uniform in composition, age arrangement, and condition as to be distinguishable from the forest in adjoining areas.

Standard

A course of action or level of attainment required by the modified 1997 Forest Plan to promote achievement of goals and objectives.

State Historic Preservation Officer (SHPO)

State-appointed official who administers Federal and State programs for cultural resources.

Stocking

The degree of occupancy of land by trees as measured by basal area or number of trees and as compared to a stocking standard; that is, the basal area or number of trees required to fully use the growth potential of the land.

Stream Class

A mapping unit that displays an identified value for aquatic resources. It is a mechanism for carrying out aquatic resource management policy. Also known as Aquatic Habitat Management Unit (AMHU).

Class I: Streams and lakes with anadromous or adfluvial fish habitat, or high-quality resident fish waters listed in Appendix 68.1, Region 10 Aquatic Habitat Management Handbook (FSH 2609.24), June 1986; or habitat above fish migration barriers known to be reasonable enhancement opportunities for anadromous fish.

Class II: Streams and lakes with resident fish populations and generally steep (6-15 percent) gradient (can also include streams from 0-5 percent gradient) where no anadromous fish occur, and otherwise not meeting Class I criteria. These populations have limited fisheries values and generally occur upstream of migration barriers or have other habitat features that preclude anadromous fish use.

Class III: Perennial and intermittent streams with no fish populations but which have sufficient flow or transport sufficient sediment and debris to have an immediate influence on downstream water quality or fish habitat capability. These streams generally have bankfull widths greater than 5 feet and are highly incised into the surrounding hillslope.

Class IV: Intermittent, ephemeral, and small perennial channels with insufficient flow or sediment transport capabilities to have an immediate influence on downstream water quality or fish habitat capability. These streams generally are shallowly incised into the surrounding hillslope.

Non-streams: Rills and other watercourses, generally intermittent and less than 1 foot in bankfull width, little or no incisement into the surrounding hillslope, and with little or no evidence of scour.

Stream Order

First-order streams are the smallest unbranched tributaries; second-order streams are initiated by the point where two first-order streams meet; third-order streams are initiated by the point where two second-order streams meet, and so on.

Stumpage

The value of timber as it stands uncut in terms of dollar value per thousand board feet.

Subsistence

Section 803 of the Alaska National Interest Lands Conservation Act defines subsistence use as, "the customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible by-products of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade."

Subsistence Use Area

Important Subsistence Use Areas include the "most reliable" and "most often hunted" categories from the Tongass Resource Use Cooperative Survey (TRUCS) and from subsistence survey data from ADF&G, the University of Alaska, and the Forest Service, Region 10. Important use areas include both intensive and extensive use areas for subsistence harvest of deer, furbearers, and salmon.

Substrate

The type of material in the bed (bottom) of rivers and streams.

Succession

The ecological progression of community change over time, characterized by displacements of species leading towards a stable climax community.

Suitable

Commercial forest land identified as having both the biological capability and availability to produce industrial wood products.

Suitable Forest Land

Forest land for which technology is available that will ensure timber production without irreversible resource damage to soils, productivity, or watershed conditions, and for which there is reasonable assurance that such lands can be adequately restocked, and for which there is management direction that indicated that timber production is an appropriate use of that area.

Suspended Sediment

The very fine soil particles which remain in suspension in water for a considerable period of time without contact with the stream or river channel bottom.

Sustained Yield

The amount of renewable resources that can be produced continuously at a given intensity of management.

Thinning

The practice of removing some of the trees in a stand so that the remaining trees will grow faster due to reduced competition for nutrients, water, and sunlight. Thinning may also be done to change the characteristics of a stand or wildlife or other purposes. Thinning may be done at two different stages.

Threatened Species

Plant or animal species which is likely to become endangered throughout all or a significant portion of its range within the foreseeable future, as defined in the Endangered Species Act of 1973, and which has been designated in the Federal Register by the Secretary of the Interior as a Threatened Species. See also Endangered Species, Sensitive Species.

Timber Appraisal

Establishing the fair market value of timber by taking the selling value minus manufacturing costs, the cost of getting logs from the stump to the manufacturer, and an allowance for profit and risk.

Timber Classification

Forested land is classified under each of the land management alternatives according to how it relates to be management of the timber resource. The following are definitions of timber classifications used for this purpose.

Nonforest: Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

Forest: Land at least 10 percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.

Suitable or suitable available: Land to be managed for timber production on a regulated basis.

Unsuitable: Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness), or identified as inappropriate for timber production in the Forest planning process.

Commercial forest: Forest land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn.

Timber Harvest Unit

A "Timber Harvest Unit" is a portion of a timber sale within which Forest Service specifies for harvest all or part of the timber to meet the requirements of a timber sale contract.

Tongass Land and Resource Management Plan (Forest Plan)

The 10-year land allocation plan for the Tongass National Forest that directs and coordinates planning, the daily uses, and the activities carried out within the Forest.

Understory

The trees and shrubs in a forest growing under the canopy or overstory.

Uneven-aged Management

Forest management techniques which simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes. Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes.

Unsuitable

Forest land withdrawn from timber utilization by statute or administrative regulation; for example, Wilderness, or identified as not appropriate for timber production in the forest planning process.

Value Comparison Unit (VCU)

Areas which generally encompass a drainage basin containing one or more large stream systems; boundaries usually follow easily recognizable watershed divides. Established to provide a common set of areas where resource inventories could be conducted and resource interpretations made.

Viable Population

The number of individuals of a species required to ensure the long-term existence of the species in natural, self-sustaining populations adequately distributed throughout their region.

Viewshed

An expansive landscape or panoramic vista seen from a road, marine waterway, or specific viewpoint.

Visual Quality Objectives (VQO)

Measurable standards reflecting five different degrees of landscape alteration based upon a landscape's diversity of natural features and the public's concern for high scenic quality. The five categories of VQOs are:

Preservation: Permits ecological changes only. Applies to Wilderness areas and other special classified areas. Management activities are generally not allowed in this setting.

Retention: Provides for management activities that are not visually evident to the casual forest visitor.

Partial Retention: Management activities remain visually subordinate to the natural landscape.

Modification: Management activities may visually dominate the characteristics landscape. However, activities must borrow from naturally-established form-line color and texture so that the visual characteristics resemble natural occurrences within the surrounding area when viewed in the middleground distance.

Maximum Modification: Management activities may dominate the landscape but should appear as a natural occurrence when viewed as background.

V-Notches

A deeply incised valley along some waterways that would look like a "V" from a cross-section. These abrupt changes in terrain features are often used as harvest unit or yarding boundaries.

Volume

Stand volume based on standing net board feet per acre by Scribner Rule.

Volume Strata

Categories of timber volume derived from the timber type data layer (TIMTYP) and the common land unit data layer (CLU). Three volume strata (low, medium, and high) are recognized in the Forest Plan.

Low Strata: The lowest range of volume for commercial forest land based on per acre volume estimates. The Forest Plan estimated the low volume class strata to contain approximately 13.9 MBF/Acre.

Medium Strata: The middle range of volume for commercial forest land based on per acre volume estimates. The Forest Plan estimated the medium volume class strata to contain approximately 23.3 MBF/Acre.

High Strata: The high range of volume for commercial forest land based on per acre volume estimates. The Forest Plan estimated the high volume class strata to contain approximately 29.9 MBF/Acre.

Watershed

The area that contributes water to a drainage or stream. Portion of the forest in which all surface water drains to a common point. Watersheds can range from a few tens of acres that drain a single small intermittent stream to many thousands of acres for a stream that drains hundreds of connected intermittent and perennial streams.

Wetland

Areas that are inundated by surface or groundwater frequently enough to support vegetation that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include: swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds. See the modified 1997 Forest Plan pp. 3-318 and 3-321 for detailed discussion on wetland type definitions.

Wilderness

Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or a primitive and unconfined type of recreation; areas of at least 5,000 acres are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest. In Alaska, Wilderness has been designated by ANILCA and TTRA.

Wildlife Analysis Area (WAA)

A division of land used by the Alaska Department of Fish and Game for wildlife analysis.

Wildlife Habitat

The locality where a species may be found and where the essentials for its development and sustained existence are obtained.

Windfirm

Trees that have been exposed to the wind throughout their life and have developed a strong root system or trees that are protected from the wind by terrain features.

Windthrow

The act of trees being uprooted by the wind. In Southeast Alaska, Sitka spruce and hemlock trees are shallow rooted and susceptible to windthrow. There generally are three types of windthrow:

Endemic: where individual trees are blown over;

Catastrophic: where a major windstorm can destroy hundreds of acres; and

Management Related: where the clearing of trees in an area make the adjacent standing trees vulnerable to windthrow.

Winter Range

An area, usually at lower elevation, used by big game during the winter months; usually smaller and better-defined than summer ranges.

Yarding

Hauling timber from the stump to a collection point.

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Appendix A

Reasons for Scheduling the Environmental Analysis of the Emerald Bay Project Area Timber Sale

А. И. ПУШКИН

Сочинения в 10 томах
Том 10. Стихотворения
1819-1827 гг.

Appendix A

Reasons for Scheduling the Environmental Analysis of Emerald Bay Project Area Timber Sale

Introduction

This Appendix provides a detailed explanation of the rationale for a specific timber sale project and its importance to the multi-year timber program on the Tongass National Forest. To accomplish this, the following questions are answered:

- Why is timber from the Tongass National Forest being offered for sale?
- What steps must be completed to prepare a sale for offer?
- How does the Forest Service develop expectations about the market demand for timber?
- How does the Forest Service maintain an orderly and predictable timber sale program?
- How does the Forest Service decide where timber sale projects should be located?
- How does this project fit into the Tongass timber program?
- Why can't this project be located somewhere else?

Coordinated timber sale planning is essential for meeting the goals of the Tongass Land Management Plan and to provide an orderly flow of timber to local industry. To determine the volume of timber to offer each year, the Forest Service can look to current market conditions and the level of industry operations. However, the lengthy planning process, of which this document is a part, requires the Forest Service to rely on projections of future harvest levels to decide how many timber sale projects to begin each year. This document explains how the Forest Service uses information about future markets and past experience with the logistics of timber sale planning to determine the volume of timber that needs to be started through this process each year. Using a detailed timber sale schedule that provides information about each sale as it moves through each stage of the planning process, this Appendix explains the rationale and the necessity for completing this particular timber sale project at this point in time.

Why is Timber from the Tongass National Forest Being Offered for Sale?

National Legislation

On a national level, the legislative record is very clear about the role of the timber program in the multiple-use mandate of the national forests. The Organic Act of 1897, 16 USC 473-481 (partially repealed in 1976) directed the agency to manage the forests in order to "improve and protect the forest ... [and] for the purpose of securing favorable conditions of water flows, and

to *furnish a continuous supply of timber* for the use and necessities of the citizens of the United States" (emphasis added.) The Multiple-Use Sustained Yield Act of 1960, 16 U.S.C. 528-531, directs the Forest Service to administer federal lands for "outdoor recreation, range, timber, watershed, and wildlife and fish purposes."

The National Forest Management Act of 1976 (16 U.S.C. 472a) states that "the Secretary of Agriculture...[may sell, at not less than appraised value, trees, portions of trees, or forest products located on National Forest System Lands]." Although the heart of the Act is land management planning, the Act also sets policy direction for timber management and public participation in Forest Service decision making. Under NFMA, the Forest Service was directed to "limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis" (16 U.S.C. 1611).

The NFMA directed the Forest Service to complete land management plans for all units of the National Forest System. Forest Plans were to be developed by an interdisciplinary team to provide for the coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness. The 1979 *Tongass National Forest Land and Resource Management Plan* was the first Forest Plan to be completed. A revised Forest Plan was issued in 1997 and modified in 1999. Subsequently, Alaska Federal Court Judge James K. Singleton vacated the 1999 TLMP ROD in a March 30, 2001 court decision. With regard to timber production, the Record of Decision for the 1997 Plan stated:

"The Tongass National Forest will continue timber harvest consistent with sustained yield and multiple use goals... Although the maximum amount of timber that could be harvested during the first decade of the Revised Plan implementation is an average of 267 MMBF per year, a level of 200 MMBF or less is more likely to be offered over the next few years, given current market conditions and the transition that both the timber industry and the Forest Service is experiencing. Therefore the public can expect the amount of timber to be offered annually to vary between 200 MMBF or less and 267 MMBF.

...The timber resource will be managed for production of sawtimber and other wood products from timberlands available for sustainable timber harvest, on an even-flow, sustained-yield basis and in an economically efficient manner. We will seek to provide a timber supply sufficient to meet the annual market demand for Tongass National Forest timber and the market demand for the planning cycle...

The Tongass National Forest will continue timber harvest consistent with sustained yield and multiple use goals. The forest-wide standards and guidelines for timber include general direction to "[e]nsure that silvicultural systems other than clearcutting are considered through an appropriate project level analysis process. However, uneven-aged management systems will be limited to areas where yarding equipment suited to selective logging can be used..."

Forest-wide, considering all land allocations where timber harvest is permitted, it is estimated that 65 percent of harvesting will involve clearcutting, with the remaining 35 percent utilizing other methods."

In the day to day operation of the Tongass timber program, the Forest Service attempts to strike a balance among timber availability as documented in the Forest Plan, the market demand for timber in Southeast Alaska, the needs and desires of other forest users, and funding allocations made by Congress.

Alaska-Specific Legislation

Legislation unique to Alaska also directs the Forest Service to maintain a commercial timber program. The Alaska National Interest Lands Conservation Act (ANILCA; P.L. 96-487, 1980) and the Tongass Timber Reform Act (TTTRA; P.L. 101-625, 1990) speak directly to the issue of Tongass timber supply. Section 705(a) of ANILCA directed the Forest Service to maintain a timber supply from the Tongass at a rate of 4.5 billion board feet per decade. To ensure that the timber target was met, Congress provided for a \$40 million annual earmark to fund pre-logging, cultural treatments and innovated logging systems.

Section 101 of TTRA repealed the timber supply mandate and fixed appropriations of ANILCA and replaced them with the following more general direction:

Sec. 705. (a), Subject to appropriations, other applicable law, and the requirements of the National Forest Management Act (P.L. 94-588); except as provided in subsection 9d) of this section, the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the annual market demand from such forest for each planning cycle.

Timber from the Tongass National Forest is being offered as part of the multiple use mission of the Forest Service as identified in public laws. Alaska-specific legislation and the Forest Plan directs the Forest Service to seek to provide timber to meet market demand subject to appropriations and balancing of forest uses.

What Steps Must Be Completed to Prepare a Sale for Offer?

The timber sale program is complex. A number of projects are underway at any given point in time, each of which may be in a different stage of planning and preparation. A system of checkpoints, or "gates", helps the Forest Service track the significant milestones of each project from inception to contract termination. Each project passes through all of the following gates, with the complexity of the sale determining the complexity of the final product at each stage.

Gate 1 - Completion of Position Statement

The Position Statement is a brief analysis of the project area with the intent of determining the feasibility of the potential timber sale. This is the first step in the timber sale planning process and it is usually completed from seven to ten years before a sale is offered. After the Position Statement is developed, the Forest Service decides whether to continue to the next phase of the project where a significant investment in time and money will be made.

Gate 2 – Sale Area Design, Environmental Documentation, and Decision

This phase of the project is commonly referred to as the "NEPA" phase and includes inventory, public scoping, analysis, draft disclosure of the effects of the project on the environment, public comment, final analysis and disclosure, decision, potential appeal, and litigation. Gate 2 activities are generally completed two to six years before a sale is offered. The end product of this phase, an environmental decision document, forms the starting point for the next phase.

Gate 3 – Plan Implementation and Field Layout

Gate 3 activities are typically completed one to three years before a sale is offered. During this phase, the information and direction included in the decision document (Gate 2) is used to designate the actual project on the ground. Additional site-specific information is collected at this time.

Gate 4 – Appraisal Offering Package

The costs and value associated with the timber sale designed in Gate 3 are computed and packaged in a timber sale contract. The contract tells the prospective timber sale purchaser how the sale must be harvested to be in conformance to the project decision document. This phase of the Gate system occurs during the final year of the project development and culminates with the advertisement of the project for sale.

Gate 5 – Bid Opening

Gate 5 is completed with the opening of bids for the project. If a bid is submitted, contractual provisions govern when the award of the sale takes place and when the sale will be completed and how timber removal is to occur.

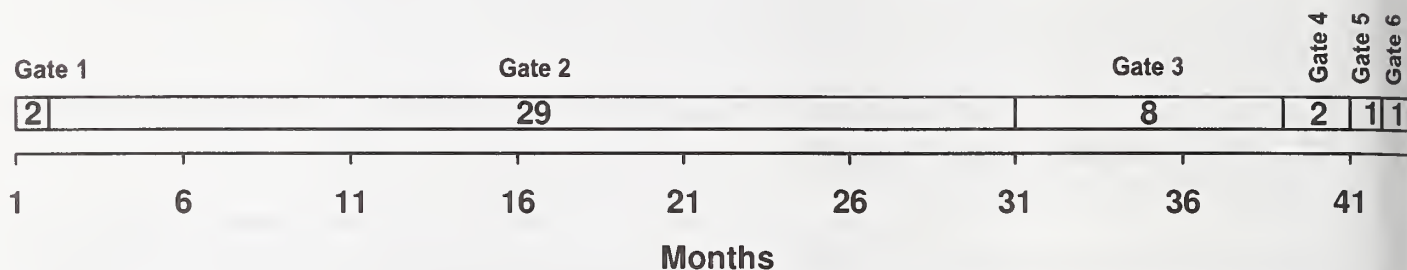
Gate 6 - Award

Gate 6 is the formal designation of a contract between a bidder and the Forest Service.

Figure A-1

Average Timeline for the Gate System

Average Timeline for the Gate System through Award *



Gate 1 - Completion of Position Statement
 Gate 2 - Sale Area Design, Environmental Documentation and Decision
 Gate 3 - Plan Implementation and Field Layout

Gate 4 - Appraisal Offering Package
 Gate 5 - Bid Opening
 Gate 6 - Award

*After a Sale is awarded, it is under contract from one to three years depending on size.

* Source: Geneen Granger, Alaska Regional Office unpublished data, Average time for Gate 2 EIS document.

How does the Forest Service Develop Expectations about Future Timber Markets?

The Tongass National Forest makes two determinations on volume to be offered. The first is a determination on volume to be offered for the current year (annual market demand). The annual market demand is analogous to assessing industry performance in the short-term. In the short-run a firm will make use of its existing equipment to maximize profits or minimize losses. The general approach is to consider the timber requirements of the region's sawmills at different levels of operation and under different assumptions about market conditions and technical processing capability. These assumptions provide a basis for estimating the volume of timber likely to be processed by the industry as a whole in any given year. Timber inventory requirements are acknowledged and estimated in a related calculation. The volume of timber likely to be purchased is equal to the volume needed to make up any inventory shortfall in addition to the volume likely to be harvested in the coming year. The document titled *Evaluating the Demand for Tongass Timber* (USDA, Forest Service, R-10; Morse; September 28, 1998) forms the basis for how these estimates were developed. The document titled *Tongass National Forest Timber Sale Procedures* (USDA, Forest Service, R-10; Morse, October 2000) documents actual estimates for the current year. This estimate is what the Tongass plans to offer for the current year of the Ten Year Timber Sale Schedule pending sufficient funding to do so. Final procedures can be located in the document titled: *Responding*

to the Market Demand for Tongass Timber (USDA, Forest Service, R-10-MB-413, Morse, April 2000).

Based on the analysis documented in the *Tongass Timber Sale Procedures*, for Fiscal Year 2002, the Tongass National Forest offering required to meet timber supply objectives is 132 MMBF. The offer planned will be a combination of new, previously offered, or previously offered and reconfigured timber sales. Both standing timber and salvage will be components of the program. Offerings will consist of those targeted for Small Business qualified firms as well as a portion of the volume being made available for the open market.

Life of the Forest Plan (Market Demand over the Planning Cycle)

Given the long time involved in preparing a timber sale, the proposed timber sales in this document may not be harvested for 3 to 4 years or longer, not including appeals or litigation. The Forest Service needs some idea of what the long-term timber demand will be given cycles in the market. On average, what should the Forest Service plan for offer, given that timber from this NEPA document may not be harvested for 4 years into the future? The Forest Service needs to take a long-term view for planning purposes. To answer these questions, the Forest Service asked the Pacific Northwest Research Station for professional assistance.

As the Tongass Land Management Plan was being revised in 1997, research economists at the Pacific Northwest Research Station (PNW) were asked to update their earlier projections of Alaska timber products output and timber harvest by ownership. The most recent projections of timber harvest over the planning cycle account for several dramatic changes in the region's manufacturing capabilities, increased competition from a number of sources, and the steady erosion of North America's share of Japanese timber markets.

The Forest Service documents these projections and the means of implementation through the issuance of a Ten Year Timber Sale Schedule. Each year this plan is updated whereby the current year is dropped at the culmination of the fiscal year and a new year ten is added. The basis for this schedule is long-range timber market projections documented in the publication titled *Timber Products Output and Timber Harvest in Alaska: Projections for FY97-10* (Brooks and Haynes; PNW-GTR-409, September, 1997). These projections of Alaska timber products output, the derived demand for raw material, and timber harvest by owner are developed from a trend-based analysis. These projections reflect the consequences of recent changes in the Alaska forest sector and long-term trends in markets for Alaska products. With the closure of the two Southeast Alaska pulp mills, demand for Alaska National Forest timber now depends on markets for sawn wood and the ability to export manufacturing residues and lower grade logs. Three alternative projections are used to display a range of possible future demand (Table A-1). Areas of uncertainty include the prospect of continuing changes in markets and in conditions faced by competitors and the speed and magnitude in investment in manufacturing in Alaska.

Demand projections are important for program planning. They provide important guidance to the Forest Service for requesting budgets, for making decisions about workforce and facilities, and for indicating the need to begin new NEPA analysis for future program offerings. They also provide a basis for expectations regarding future harvest, and thus provide an important source of information for establishing the schedule of probable future sale offerings. The weight given to the projections will vary depending on a number of factors, such as how recently they were done, and how well they appear to have accounted for recent, site-specific events in the timber market.

Table A-1
Projected National Forest Harvest¹

Fiscal Year	Projected Harvest (MMBF)			Actual
	Low	Medium	High	
1998	77.3	86.0	112.2	119.8
1999	86.4	99.3	127.9	145.8
2000	95.5	115.9	142.7	146.8
2001	104.6	129.0	157.7	
2002	113.7	134.9	173.1	
2003	122.8	140.8	188.9	
2004	131.9	146.5	205.0	
2005	131.9	152.2	221.4	
2006	131.9	157.8	238.2	
2007	132.0	163.4	255.3	
2008	132.0	168.9	272.8	
2009	132.1	174.3	290.7	
Average	112.8	132.6	182.2	137.5
Mean			168.7	

¹For Fiscal Years 2001-2009, the Tongass National Forest plans to schedule approximately 160 MMBF for sale each year over the life of the Forest Plan. This schedule is based on the projections documented in *Timber Products Output and Timber Harvest in Alaska: Projections for FY97-10* (Brooks and Haynes; PNW-GTR-409, September, 1997), and current volumes in the timber sale pipeline process. Prior to the beginning of Fiscal Year 2002 the amount of volume scheduled in outyears will once again be analyzed to determine if projections made now meet the anticipated needs in the future.

How does the Forest Service Maintain an Orderly and Predictable Timber Sale Program?

Pools of Timber (Pipeline Volume)

As discussed earlier, the Forest Service tracks accomplishment of various stages of development of each timber sale with the Gate System process. From a timber sale program standpoint, it is also necessary to track and manage multiple projects through time as projects collectively move through the Gate System. Tracking of the multiple projects can be likened to following various segments of several projects through a pipeline of time. Because of the relatively long timeframes needed to accomplish a given timber sale and the complexities inherent in timber sale project and program development, it is necessary to track various timber sale program volumes from Gate 1 through Gate 6. Gate 1 volume represents a large pool of program volume, but represents a relatively low investment from project to project. This relative investment level offers the timber program manager a higher degree of flexibility and thus, does not greatly influence the flow of volume through the pipeline. In addition, tracking of how much volume near the end of the pipeline that is in appeals or litigation may be necessary to determine potential effects on the flow of potential timber sales.

The goal of the Tongass National Forest is to provide an even flow of timber sale offerings on a sustained yield basis. In past years, this has been difficult to accomplish due to continual reductions in the suitable timber land base, reductions in the timber industry processing capabilities, rapid market fluctuations and Forest Plan modifications and litigation. To achieve an even flow of timber sale offerings, 'pools' of projects in various stages of the Gate System will be maintained so volume offered can be balanced against current year demand and market cycle projections. Today, upward trends in demand are reacted to by moving outyear timber projects forward leaving outyears not capable of meeting the needs of the industry. In other instances, a number of new projects are started based on today's market but not available for a number of years. By the time the added projects are ready for offer, the market and demand for this volume has changed. Three pools are being tracked to achieve an even flow of timber sale offerings:

- **Timber volume under analysis (Gate 2):** Timber volume under analysis contains sales being analyzed and undergoing public comment through the NEPA process. This process can often take from one to five years and reaches a significant milestone when a NEPA decision is made. This pool includes any project with a formal Notice of Intent through those with a decision document issued. Volume in appeals and litigation will be tracked as a subset of this pool as necessary.
- **Timber volume available for sale (Gate 3, Gate 4 and Gate 5):** Timber volume available for sale contains sales for which environmental analysis has been completed, and administrative appeals, and litigation (if any) have been resolved. They have also been fully prepared, and are available to managers to schedule for sale offerings. Managers need to maintain enough volume in this pool to be able to schedule future sale offerings in an orderly manner of the size and configuration that best meets the need of the public. As a matter of policy, and sound business practice, the Forest Service attempts to announce probable future sale offerings at least one year in advance. This allows potential purchasers an opportunity to do their own evaluations of these offerings in order to determine whether to bid, and if so, at what level.
- **Timber volume under contract (Gate 6):** Timber volume under contract contains sales that have been sold and a contract awarded to a purchaser, but has not yet been fully harvested. Timber contracts typically, but not always, give the purchaser three years to harvest and remove the timber purchased. Long standing Forest Service practice is to attempt to maintain about two to three years of unharvested timber volume under contract to timber purchasers. This volume of timber is the industry's dependable timber supply, which allows immediate flexibility in business decisions. This practice is not limited to the Alaska Region, but is particularly pertinent to Alaska because of the nature of the land base. The relative absence of roads, the island geography, the steep terrain, and the consequent isolation of much of the timber land means that timber purchasers need longer-than-average lead times to plan operations, stage equipment, set up camps, and construct roads prior to beginning harvest.

What drives the various timber sale program pipeline pool volume is a combination of actual harvest and projected demand. As purchasers harvest timber, they deplete the volume under contract. Managers track harvest, and offer sales that give the industry as a whole the opportunity to replace this volume and build or maintain their working inventory. Although there can be significant variation for practical reasons from year to year, in the long-run, over both the high points and low points of the market cycle, timber harvest will equal timber sales.

The Forest Service, based on historical patterns, determines the amount of pipeline volume in each of the pools. Table A-2 displays volume levels that are expected to be maintained in each pool.

- Pool 1, Timber Volume Under Analysis, is expected to be maintained at approximately 4.5 times the amount of anticipated harvest.

- Pool 2, Timber Volume Available for Sale, is expected to be maintained at approximately 1.3 times the amount of anticipated harvest.
- Pool 3, Volume Under Contract, is expected to be maintained at approximately 3 times the amount of anticipated harvest.

The objective of the pools concept is to maintain sufficient volume in preparation and under contract to be able to respond to yearly fluctuations in a timely manner.

Table A-2
Pipeline Pool Matrix

Pipeline Pool Volume	Flows	End of FY 01	Planned During FY 02	End of FY 02
1. Volume Under Analysis ¹ (Gate 2) (MMBF)		357 ²	359 ³	368 ³
	NEPA Cleared	109 ³	209 ³	181 ³
2. Volume Available for Sale ⁴ (Gate 3, Gate 4 and Gate 5) (MMBF)	Offered		132	
	Sold		110 ⁵	
3. Volume Under Contract ⁶ (Gate 6) (MMBF)		358 ⁷		354 ⁸
	Volume Harvested*		114 ⁹	

Matrix crosswalk between Gate Tracking System and Pools of Timber Concept:

¹ Gate 2: Decision document that is viable for sale after completion of appeals and litigation.

² Actual figure from Tongass National Forest Schedule of Proposed Actions.

³ Estimated figure.

⁴ NEPA cleared timber volume: Gate 3, field preparation work; Gate 4, timber sale contract package preparation; Gate 5, Timber Sale bid opening.

⁵ Tongass National Forest Timber Sale Procedures, Morse, October 2000, Table page 4, updated August 2001 by William Wilson, Regional Office, Forest Management Planning Group Leader.

⁶ Gate 6: Timber sale award and contract execution, based on the Timber Sale Statement of Accounts.

⁷ Volume under contract as of October 2001.

⁸ Three times the amount of volume projected in the LOW market scenario given in Timber Output and Timber Harvests in Alaska: Projection for 1997 – 2010, Gen. Tech. Report. PNW-GTR-409, Portland, Oregon, USDA Forest Service, PNW Research Station.

⁹ Projected harvest for FY 2002, from the PNW Research Station.

*Note-The amount of volume estimated to be harvested for the year sets the basis for what will be maintained in Pools 1-3 (Gates 2 through 6). Should this estimate be incorrect, adjustments can be made in the following years without significant departures in outyear program capabilities.

Table A-3. Timber Volume in Appeals and/or Litigation

Timber volume in appeals and/or enjoined in litigation *	23.8 Million Board Feet
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*As of 01/01/01. The volume in appeals, remanded and/or enjoined in litigation is updated on a quarterly basis.

How Does the Forest Service Decide Where Timber Sale Projects Should be Located?

The Allowable Sale Quantity (ASQ)

The 1997 Forest Plan Record of Decision established an ASQ for timber at 2.67 billion board feet per decade, which equates to an annual average of 267 million board feet (MMBF). The ASQ serves as an upper limit on the amount of timber that may be offered for sale as part of the regularly scheduled timber sale program. It consists of two separate Non-Interchangeable Components (NICs) called NIC I, which is 2.2 billion board feet of timber per decade, and NIC II, which is .47 billion board feet per decade. There are two purposes of partitioning the ASQ into two components:

- 1) to maintain the economic sustainability of the timber resource by preventing the over-harvest of the best operable ground and
- 2) to identify that portion of the timber supply that is at risk of attainment because of marginal economic conditions.

The NIC I component includes lands that can be harvested with normal logging systems. The NIC II component includes land that has high logging costs due to isolation or special equipment requirements. Most of these NIC II lands are presently considered economically and technically marginal.

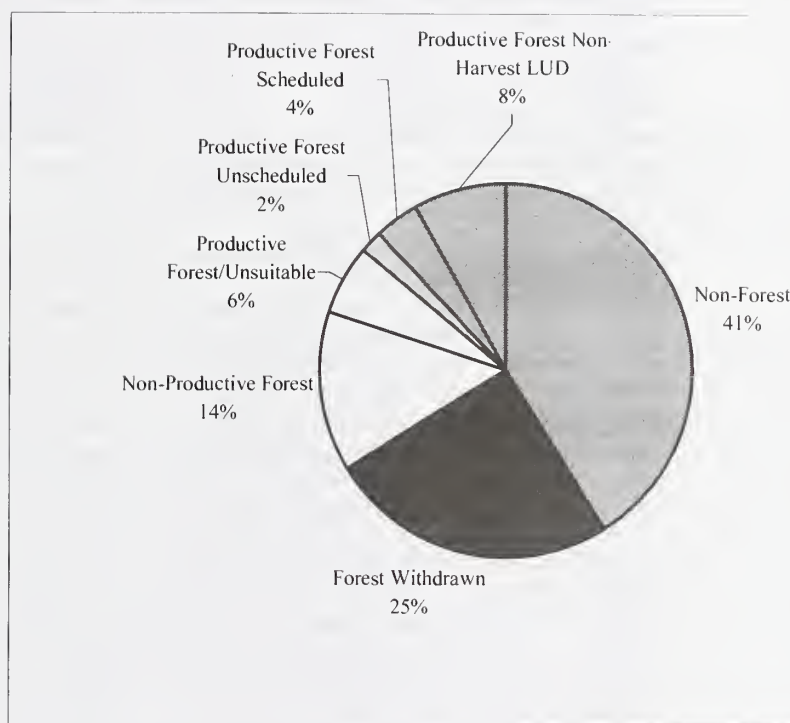
The Tongass National Forest has been unified under one Forest Supervisor. For planning and scheduling purposes, the allowable sale quantity is distributed by Ranger District. Each District has been allocated a portion of the timber harvest program based on the FORPLAN computer run and availability of suitable and available acres, to implement the Forest Plan, and Section 101 of the Tongass Timber Reform Act (1990). The Forest Plan set the Forest-wide allowable sale quantity (ASQ) upper limit at 267 MMBF per year. The distribution of the planned ASQ harvest among the Districts is listed in Table A-4 (all volumes are identified as sawlog plus utility).

Historically, timber harvest has been spread across the Tongass National Forest with the long-term timber sales and mills located in Sitka and Ketchikan. The suitable timber land base is spread across the Forest as displayed in Figure A-2. In answer to the question presented for this section of the Appendix, the suitable timber base is capable of producing the ASQ documented in the 1997 Forest Plan Record of Decision.

Table A-4
Distribution of ASQ Among the Tongass National Forest Ranger Districts

Tongass National Forest Ranger District	Non-Interchangeable Components	
	NIC I	NIC II
Ketchikan	32	7
Thorne Bay	42	9
Craig	33	7
Wrangell	28	6
Petersburg	50	9
Sitka	17	4
Hoonah	7	2
Juneau	7	2
Yakutat	4	1
Admiralty	0	0
NIC Totals	220	47
ASQ Total (mmbf)	267	

Figure A-2
1997 Forest Plan Timber Resource Suitability Analysis



This chart depicts the productive suitable land base that is scheduled for timber harvest activities. Four percent of the Tongass land base generates the allowable sale quantity of 267 MMBF per year. The remainder of the land, approximately ninety-six percent, is not scheduled, does not allow or will not support timber harvest activities.

Non-Forest – Land that has never supported forests, eg. muskeg, rock, ice, etc.

Forest Withdrawn – Forest lands designated by Congress, the Sec. of Agriculture, or Chief for purposes that preclude timber harvest are classified as unsuitable, eg. LUD Congressionally Designated Roadless Areas.

Non-productive Forest – Forest land not capable of producing crops of wood.

Productive, Non-harvest LUD – Productive forest lands that are not suited for timber production due to Forest Plan land use designation eg. Semi-Remote Recreation, Old-growth Habitat, etc.

Productive Forest Unsuitable – Forest land unsuitable for timber due to physical attributes (steep slopes) and/or inadequate information to insure restocking trees (soils).

Productive Forest Scheduled – Forest land scheduled over the rotation available for timber harvest.

Productive Forest Unscheduled – Forest land that meets all the criteria for timber production availability but not scheduled for harvest over the rotation.

Source: Appendix A, 1997 Forest Plan

District-Level Planning

The Forest Supervisor for the Tongass National Forest has discrete responsibilities for the overall management of the Forest's timber sale program. Included within these responsibilities is making the determination on the amount of timber volume to be made available to industry, as described above. Once a determination is made for the current year (annual demand) offer level, the information is presented to Congress via the Regional Forester and Chief of the Forest Service. Whether or not funding is appropriated to attain the program is the responsibility of the Congress and the President of the United States.

While the debate on funding takes place, the Tongass Forest Supervisor directs the District Rangers to formulate timber sale schedules that attain the prescribed offer level for the current

year as well as develop outyear timber programs based on projected market demand for the planning cycle. It is the Ranger's role to recommend to the Forest Supervisor timber sale projects that meet Forest Plan goals and objectives. Districts work on various projects simultaneously resulting in continual movement of projects through the stages of the timber program pipeline. Their schedule allows the necessary time to complete preliminary analysis, resource inventories, environmental documentation, field layout preparations and permit acquisition, appraisal of timber resource values, advertisement of sale characteristics for potential bidders, bid opening, and physical award of the timber sale. Once all of the Rangers' recommendations are made and compiled into a consolidated schedule, the Forest Supervisor is responsible for the review and approval of the final plan.

Pending Congressional appropriations, the sale schedule is implemented. In the event insufficient funds are appropriated to achieve the desired outputs, timber sale projects are selected and implemented on a priority basis. Generally, the higher priority projects include sales where investments such as road networks, camps or log transfer facilities have already been established. Those sales that are not implemented or only partially implemented are moved to the outyears. The sale schedule becomes very dynamic in nature due to the number of influences on each of the districts. A formal review of the schedule is done annually by the Forest Supervisor in consultation with the District Rangers, and amendments are made as needed through the course of the year. (The Tongass Timber Sale Plan is located on the Tongass National Forest Website, www.fs.fed.us/r10/Tongass/).

The National Forest Management Act requires the Forest Service to develop timber sale schedules that encompass the life of the Forest Plan. The recent Tongass National Forest Planning process culminated in issuance of the *Forest Plan Record of Decision for the Tongass Land and Resource Management Plan*. In response to this Plan, the Tongass has prepared a Ten Year Timber Sale Schedule for Fiscal Years 2002-2011. The Fiscal Year 2002 offer level is based on annual market demand estimates. The remaining years, 2003-2011, are based on market demand projections over the planning cycle. Table A-5 denotes the first year of the ten-year plan. Fiscal Year 2002 is listed below to show the reader an example of the information available and display the timber sales scheduled for the current fiscal year.

Table A-5
Tongass Ten Year Timber Sale Schedule-Fiscal Year 2002

NEPA Project	Decision		Sale Name	Vol S+U		FY02 Gate	FY02 Gate
	Date	RD		(MMBF)	Class	3	5
Mop Point/91 Knot		MKRD	Knot	0.7		0	0.7
Fire Cove Salvage	Dec 01	MKRD	F.C. Salvage	0.5		0	0.5
Craig Small Sales	X	CRD	Small Sales	2.0		2.0	2.0
Chasina EIS	May 98	CRD	Johnston Mtn.	5.9		5.9	5.9
TNB Small Sales EA	X	TNB	Small Sales	3.0		3.0	3.0
Roadside EA	Dec 01	TNB	Small Sales	2.0		2.0	2.0
Control Lake EIS	May 98	TNB	Musky Beaver (FY 01)	0.2		0.1	0.2
Control Lake EIS	May 98	TNB	Pepper (FY 00)	6.0		1.0	6.0
Control Lake EIS	May 98	TNB	Chrome (FY 01)	3.9		1.0	3.9
Control Lake EIS	May 98	TNB	Mad Rush (FY 01)	5.0		1.0	5.0
Lab Bay EIS	Jan 97	TNB	Summore Change (FY 01)	8.0		1.0	8.0
Lab Bay EIS	Jan 97	TNB	Thorne Island	3.5		1.0	3.5
Luck Lake	Jun 00	TNB	Twin Bridge (FY 00)	6.0		1.0	6.0
Luck Lake	Jun 00	TNB	Luck Lake (FY 00)	8.0		1.0	8.0
Eight Fathom EIS	May 96	HRD	Midway	9.2		0	9.2
HRD Small Sales	X	HRD	Small Sales	0.4		0.4	0.4
Eight Fathom	May 96	HRD	Hot Springs	5.0		0	5.0
Woodpecker	X Proposal	PRD	Woodbine (Unit 187)	0.1		0.1	0.1
Woodpecker	X Proposal	PRD	Woodchuck (Unit 161A)	0.2		0.2	0.2
South Lindenberg EIS	Dec 96	PRD	South Pass (Unit 69)	2.0		2.0	2.0
Doughnut	Apr 00	WRD	Doughnut	3.4		3.4	3.4
Swan/Tyee Powerline EIS	Aug 97	MKRD	Powerline	4.0		4.0	4.0
King George	Aug 96	WRD	George	2.0		2.0	2.0
King George	Aug 96	WRD	Honeymoon	2.0		2.0	2.0

* These NEPA documents are in-progress and may or may not have an action alternative selected. Volumes displayed are for planning purposes only and do not constitute a decision.

The Ten Year Schedule provides a significant amount of information and is described as follows:

NEPA Project: Environmental document project name. This name may or may not differ from the timber sale project name depending on how many sales originate from the original NEPA document.

Decision Date: The date of the decision document, whether planned or actual. "X" denotes project has started and completion is within the Fiscal Year but a specific date (e.g. month) is not firm.

RD: Ranger district office where project is located (PRD=Petersburg Ranger District).

S+U (MMBF): Possible timber volume (sawlog plus utility) that could result if an action alternative is selected from the NEPA document. Generally only appears once in the year the decision is made. If no volume is shown, decision on document was made in another fiscal year.

Sale Name: Timber sale project name. FY 00 designates that this timber sale was originally planned to be sold in fiscal year 2000, but due to late NEPA decisions, personnel going to lower 48 states' fires, and other delays caused the timber sale to be advertised late and sold early in FY 2001.

Vol S+U (MMBF): Possible timber sale project volume (sawlog plus utility).

Class: Timber sale size class determination (S-SBA, O=open sale to all bidders).

FY02 Gate 3 (Layout): Only appears in fiscal year sale is to be laid out and appraised. May appear in more than one year.

FY02 Gate 5 (Offer): Only appears in fiscal year sale is to be offered. Number designates potential volume.

The location of timber sale projects are based on the land allocation directed in the Forest Plan decision. Timber sales are located where permitted based on the prescription and objectives of the land use designation. Timber sale projects are located to varying degrees in land use designations identified as Timber Production, Modified Landscape, and Scenic Viewshed.

As stated earlier, the District Ranger is responsible for identifying and recommending the project areas for the Ten Year Timber Sale Schedule. The considerations the Ranger makes on each project includes but are not limited to the following:

- The project area contains a sufficient number of acres allocated to development land use designations to make timber harvest in the area appropriate under the Forest Plan. There is an adequate amount of suitable and available land for timber harvest opportunities. Available information indicates harvest of the amount of timber volume being considered for this project can occur consistent with the Forest Plan standards and guidelines and other resource protection requirements.
- The project and proposed timber harvest volume can contribute to achieving the goals and objectives of implementing the Forest Plan.
- The potential investment in infrastructure (roads, bridges, log transfer facilities, camps, rock pits, etc.) is necessary for sustainable timber harvest offerings. Where infrastructure already exists, this project will enable maintenance and upgrade of the facilities, which is necessary for removal of timber volume.
- The potential effects on subsistence and other resources.
- Based on current year and anticipated outyear timber volume demand; volume currently under contract; anticipated Congressional allocations; and the availability of resources to fully prepare and offer this project for sale, this project is consistent with and meets all laws and regulations. These laws and regulations include Forest Service Policy in the Alaska Region Regional Guide; Best Management Practices; the 1997 *Tongass Land and Resource Management Plan FEIS and ROD*; and all other laws and regulations governing the removal of timber from National Forest System lands.

How Does This Project Fit into the Tongass Timber Program?

The Emerald Bay project is proposed for offer beginning in Fiscal Year 2002 (Tongass National Forest Ten Year Timber Sale Schedule). Forest-wide, total offer volume being planned for Fiscal Year 2002 is approximately 110 MMBF. In order to achieve the planned

offer date, the Emerald Bay project has a proposed Gate 2 completion date of Fiscal Year 2001 with Gate 3 implementation to begin by Fiscal Year 2002.

The Emerald Bay project is currently in Gate 2, "Volume Under Analysis." The project's action alternatives being addressed in the NEPA analysis range from approximately 10.8 MMBF to 16.3 MMBF that could contribute to the Tongass Timber Sale Program. As described earlier, the volume of timber needed to maintain this Pool is 368 MMBF. Currently, forest-wide, Pool 1 contains from 119.8 MMBF to 124.8 MMBF inclusive of this project. Therefore, the Emerald Bay project is consistent with program planning objectives and necessary to meet the goal of providing an orderly flow of timber from the Tongass on a sustained yield basis. Given the included information, it is reasonable to be conducting the environmental analysis for this project at this time.

Why Can't This Project Occur Somewhere Else?

As previously discussed, the market demand for timber for the next ten years is expected to average 168.7 MMBF per year. The suitable and available land base on the Tongass is capable of supporting an Allowable Sale Quantity of 267 MMBF annually, 220 MMBF of which is considered economical (i.e. the NIC I component). Based on the projected market demand for the planning cycle, all suitable timberlands will eventually be scheduled for harvest to meet the current and projected demand for raw material in Southeast Alaska. The relocation of this project in another area is inefficient and potentially contrary to the standards and guidelines of the Forest Plan. This decision is based on the cumulative impact on other resources from past harvest activities, the location of timber sales under contract, and the eventual use of all suitable lands for timber sale projects.

- Areas with available timber will be necessary to consider for harvest in order to seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle, pursuant to Section 101 of the Tongass Timber Reform Act (TTRA).
- The potential effects on subsistence resources are projected to differ little based on the sequence these areas are harvested. Harvesting other areas with available timber on the Tongass National Forest is expected to have similar potential effects on resources, including those used for subsistence, because of widespread distribution of subsistence use and other factors. Harvest within other areas is foreseeable, in any case over the forest-planning horizon under the Forest Plan.
- Providing substantially less timber volume than required to meet Forest Plan and TTRA Section 101 timber supply and employment objectives in order to avoid harvest in the project area is not necessary or reasonable.
- It is reasonable to schedule harvest in the project area rather than in other areas at the present time based on previous harvest entry and access, level of controversy over subsistence and other effects, the ability to complete the National Environmental Policy Act (NEPA) process and make timber available to meet the needs of dependent industries. Other areas that are reasonable to consider for harvest in the near future are the subjects of other project EISs that are currently ongoing or scheduled to begin soon.

Appendix B

Response to Comments

Exhibitions

Exhibitions

Appendix B

Introduction

Appendix B includes all written comments received for the Emerald Bay Draft Environmental Impact Statement (EIS) and the U.S. Forest Service responses to them.

Analysis and Incorporation of Public Comment

Twenty-two agencies, organizations, and individuals submitted written comments on the Emerald Bay Draft EIS. Comments received were roughly divided into three categories. Many respondents were apprehensive over our proposals to build road and harvest timber on the Cleveland Peninsula. They felt the roadless nature of the Cleveland should be retained. They referenced a letter from the governor of Alaska corroborating that statement. Others were concerned that we were setting a precedent by proposing to build a road through a medium Old-growth Reserve. They cited possible impacts to fish and wildlife resources and wondered what allowances we would make. Others expressed concern over the economic viability of proposing uneven-aged management prescriptions in an isolated patch of land designated as Timber Production. They also questioned whether these prescriptions would meet the objectives of the Timber Production LUDs and/or the Purpose and Need for the project.

The Interdisciplinary Team (IDT) thoroughly and objectively read and analyzed every substantive issue or concern. Individual comments/issues within each letter are numbered to facilitate analysis.

Letters Received from Individuals, Organizations, and Agencies

The following list includes all individuals, organizations, and agencies that the U.S. Forest Service received comments from during the 98-day extended comment period following the publication of the Emerald Bay Draft Environmental Impact Statement and subsequent Project Update letter. This document includes the U.S. Forest Service response to the issues addressed in the public comment.

Name	City	State	Organization	Pages
Paul Slenkamp	Ketchikan	AK		B-4 - B-5
Henry Hays (#1)	Bainbridge Is.	WA		B-6 - B-7
Elzie Isley	Ketchikan	AK		B-8 - B-9
Darryl Williams	Ketchikan	AK	Cleveland Users Coalition	B-10 - B-11
Frank Talerico	Ketchikan	AK		B-12 - B-13
Henry Hays (#2)	Bainbridge Is.	WA		B-14 - B-15
Jill Jacob	Ketchikan	AK		B-16 - B-17
Jacquelyne & Robert Hunley	Meyers Chuck	AK		B-18 - B-21
Eric Hummel	Ketchikan	AK	Tongass Conservation Society	B-22 - B-25
Marc Wheeler	Juneau	AK	SE Alaska Conservation Council	B-26 - B-45
Bryan Bird	Boca Raton	FL	Forest Conservation Council	B-46 - B-55
Mike Sallee	Ketchikan	AK		B-56 - B-57
Pamela Bergmann (#1)	Juneau	AK	U.S. Department of the Interior	B-58 - B-76
Georgianna Zimmerle	Ketchikan	AK	Ketchikan Gateway Borough	B-78 - B-87
Rexford Blazer	Juneau	AK	State of AK, Dept. of Govt. Coordination	B-88 - B-103
Kent Nicholson	Ketchikan	AK	Gateway Forest Products	B-104 - B-105

Appendix B

Jack Phelps	Ketchikan	AK	Alaska Forest Association	B-106 - B-115
Frank Age	Ketchikan	AK	Pacific Log & Lumber, Ltd.	B-116 - B-117
Richard Parkin	Seattle	WA	U.S. Environmental Protection Agency	B-118 - B-123
Jerry Kilanowski	Wrangell	AK	Silver Bay Logging	B-124 - B-125
Bill Green	Ketchikan	AK		B-126 - B-127
Pamela Bergmann (#2)	Juneau	AK	U.S. Department of the Interior	B-128 - B-138

Subsistence Hearings

The Emerald Bay project was determined to pose no significant possibilities of significant restrictions to subsistence rights. No subsistence hearings were necessary.

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Comments on the Emerald Bay Timber Sale

Paul Slenkamp
PO Box 1406
Ward Cove, AK 99928

I appreciate the opportunity to give comment on this sale. As a professional in the timber industry in SE Alaska for over 20 years I am aware of the increasing difficulty, that the professionals at the United States Forest Service are having trying to balance all the competing interests in the Tongass.

I am aware that harvest is a decreasing priority in this forest. Unfortunately there seems to be little effort being put forth to make sales affordable. Helicopter yarding is a great tool and can be affordably used, as long as a balance is maintained between value of wood and yarding distance. For most sales with a typical species diversity a turn time (round trip) of 2 1/2 to 4 minutes is necessary to be economical. Of course when the wood has more value longer turn times can be used. But this has to be balanced with the economy of scale, the more volume harvested the more move in costs can be amortized.

Another tool which can be used is barging instead of rafting. This adds considerable cost in log movement and to be even considered requires an LTF and upland storage. The combination of the proposed systems of flying wood a long distance to a barge, adds excessive cost and makes the whole process an exercise in futility. A helicopter to barge operation is extremely expensive. By the figures in your own tables Camp 3-42 the only alternative that shows any profitability is "H". These figures use a "high market value" and barely show a profit.

If the limited amount of industry that is left in SE Alaska is to remain, it must have affordable timber sales. In the equation of producing value added products there are many "fixed" costs. Harvest, manufacturing, and market are a relative constant. The only factor that can be adjusted is initial startpage.

I support Alternative B with as much conventional logging possible. This will help balance the helicopter yarding. Also if barging is to be used the LTF must be able to accommodate enough wood to load a barge.

Thank You



Paul Slenkamp

PS #1

PS #2

Forest Service Response to PS 1

In an attempt to display the effects of the issues raised during scoping, a full range of alternatives was developed for the Emerald Bay Timber Sale. An economics analysis was done for each alternative. This analysis indicated that while both Alternatives B and D appraised positive at low, current, and high market conditions, Alternative B is the most economically efficient alternative. Alternative C, which does not construct roads, is deficit for all alternatives due primarily to long helicopter turn times. Alternative D remains positive although not to the level that Alternative B does.

Forest Service Response to PS 2

The LTF site was planned to facilitate barge loading only. The cost of flying timber directly to a barge in Emerald Bay was included in the economic analysis of Alternative D.

Appendix B

Here are my comments for the Emerald Bay EIS:

cc. 3/2/0.

Due by May 5, 2000

Please complete the other side before sending to your comments

If you have no comments at this time but wish to remain on the Emerald Bay mailing list, please return this form with the other side filled out. If your mailing label is correct, you may cut it out and tape it here.

Name:

Organization: (official representation only)

Address.

City, State, Zip:

Days
18530 Agate Pl, NE
Bellevue Island, WA 9811

By date: 12/15

To the Honorable, the President of the United States
Washington, D.C.
Dear Sir:
I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the matter of the proposed amendment to the Constitution of the United States, and in reply to inform you that the same has been forwarded to the proper authorities for their consideration.
Very respectfully,
Your obedient servant,
John F. Kennedy

HH #1

Please complete the other side, and mail to:

District Ranger, Ketchikan - Misty Fjords Ranger District, Tongass National Forest.

Attr Emerald Bay EIS, 303, Tongass Avenue, Ketchikan, AK 99901

Telephone: (907) 225-2148 FAX: (907) 225-8738 E-Mail: dlnx@u.korchi.kam2.fz.fcz.us

Forest Service Response to HH 1

The Purpose and Need for the Emerald Bay project has always included exploring opportunities to apply uneven-aged management and gather information on helicopter yarding, even though various policy changes (see Final EIS, Chapter 1, Purpose and Need) have occurred that have changed the focus of the Emerald Bay proposal somewhat.

Public sentiment and comments to the Draft EIS also supported a lighter touch to management on the Cleveland Peninsula, something which could be addressed through application of uneven-aged management. Additionally, the Forest Plan directs us to seek to reduce clearcutting when other methods will meet land management objectives. Helicopter yarding lends perfectly to the implementation of uneven-aged management and the prescriptions are designed to meet all applicable standards and guidelines as well as the land management objectives.

Although management practices in Southeast Alaska have used predominantly even-aged systems, recent studies on alternatives to clearcutting have provided valuable information on the local applicability of these systems (McLellan, Michael H.; Swanson, Douglas N.; Hennon, Paul E.; Deal, Robert L.; De Santo, Toni L.; Wipfli, Mark S.: 2000. Alternatives to Clearcutting in Old-growth Forests of Southeast Alaska: study plan and establishment report; PNW-GTR-494. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest research Station. Deal, Robert L.; Tappeiner, John C., II. 2001. The effects of partial cutting on stand structure and growth of western hemlock-Sitka spruce stands in Southeast Alaska (Final EIS pg. 3-34)).

Appendix B

Here are my comments for the Emerald Bay EIS:

Due by May 5, 2000

Please complete the other side before sending in your comments.

If you have no comments at this time but wish to remain on the Emerald Bay mailing list, please return this form with the other side filled out. If your mailing label is correct, you may cut it out and tape it here.

Name:

Organization: (official representation only)

Address:

City, State, Zip:

I think alternate
B makes the most
sense. If your purpose
is to make stumpage
so high it is impossible
to log you will see others

EI #1

Mr. Clive Isley
225 4881

Please complete the other side, and mail to:

District Ranger, Ketchikan - Misty Fjords Ranger District, Tongass National Forest,

Attn: Emerald Bay EIS, 3051 Tongass Avenue, Ketchikan, AK 99901

Telephone: (907) 225-2148 FAX: (907) 225-8738 E-Mail: dfox.rld_ketchikan@fs.fed.us

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rec. 4/6/02

Forest Service Response to EI 1

From strictly an economic point of view, Alternative B is most cost effective.

Appendix B

want my name on the mailing list to receive future information on the Emerald Bay EIS. I am aware that the mailing list is not confidential. Please send when available (check one):

rec. 3/22/00

☐ COMPLETE Draft EIS ☐ Just the SUMMARY of the Draft EIS

Name:

Darryl Williams

Organization:

only if officially representing it:

Mailing Address:

P.O. Box 836

City/State/Zip:

Ward Cove, AK 99938

COMMENTS: (may also be mailed, address on Reverse)

I am a member of The Cleveland Users Coalition and as you know we are very much against roads on the Cleveland peninsula.

My view is that if the timber industry cannot afford to log the Emerald Bay with helicopter and selective cut then so be it.

Why does the USFS feel they have to push this sale?

After all when L.P. decided to log their private holding at Granite Creek they did not build roads they used helicopter and barge.

We were told that was to be a new credible USFS. Credibility and trust is not sustained by going back on your word.

Darryl Williams

CONTACT: DEVIN FOX 228-4126 OR

SUSAN NARTHALLER 228-4124

DW #1

Forest Service Response to DW 1

Management of the Cleveland Peninsula has long been contentious. However, the Forest Plan land use designation for the Emerald Bay project area is Timber Production. All developmental LUDs are evaluated when scheduling timber sale activities and many factors are considered.

The impacts of initial entries in one area must be weighed against the potential for cumulative effects of increased management in previously entered areas. The Forest Service believes that by considering low impact roads, helicopter versus cable harvest, barge LTF, and uneven-aged management prescriptions, we have far exceeded the basic standards and guidelines for managing lands in a Timber Production LUD.

Alternative D was introduced to better clarify the range of alternatives from which the deciding official could choose, particularly in light of new economic information surrounding Alternative C. The alternative required no new analysis as its impacts fall between those already considered in Alternatives B and C.

Alternative D proposes to use the same uneven-aged silvicultural systems as does Alternative C. Road 8645900-2 is the only road proposed in Alternative D. It is designed as a low-impact access road to shorten the helicopter-yarding distances.

Appendix B

Here are my comments for the Emerald Bay EIS: *see page 15*

REC. 3/24/50

Due by May 5, 2000

Please complete the other side before sending in your comments.

If you have no comments at this time but wish to remain on the Emerald Bay mailing list, please return this form with the other side filled out. If your mailing label is correct, you may cut it out and tape it here.

Name: FRANK THAYER D

Organization: (official representation only) *unemployed or RR work*

Address: 825 C. ROTH DR

City, State, Zip: Chapel Hill, N.C. 27514

FT #1

Please complete the other side, and mail to:

District Ranger, Ketchikan - Monty Fields Ranger District, Tongass National Forest.

Attn: Emerald Bay EIS, 3031 Tongass Avenue, Ketchikan, AK 99901

Telephone: (907) 225-2145 FAX: (907) 225-6738 E-Mail: dfaxr10.keterikang@is.fed.us

Forest Service Response to FT 1

We acknowledge your concerns with timber availability and employment issues. Alternative D has appraised as positive under all market conditions. It will provide 59 jobs and \$2,630,000.00 in logging-related employment.

Hays
16630 Agate Pl. NE
Bainbridge Island, WA 98111.

RECEIVED

JAN 27 2000

USDA Forest Service
KNOX/NEP

23.1.00

To Terry Ingersoll, DFR Ktn Dist
From Hank Hays (Ktn DFR 1960-64).
Subject: Emerald Bay DES

Comments

1. I would favor Alt B, assuming a market.
2. What is the market? The DES does not specify. I assume primary manu-
facture still applies.
3. What are potential road connections under Alt B?
4. Wildlife: an analysis of the Ktn RD should show the total huntable area for deer compared to the Emerald Cove VCU. One assumes there is no accurate figure for deer take there unless ADF#6 requires it.
5. As Planning Officer at Sitka, I believe I was the 1st to recommend a partial cut in our 1976-81 ALP 5 year plan. However, clearcutting should always be used except in a few cases.
6. A stable economy in SEA requires utilizing the resources available, i.e. timber as well as fish etc. Alt B represents a reasoned attempt at balanced use.

HH2 #1

HH2 #2

HH2 #3

HH2 #4

HZ Hays

Forest Service Response to HH 2-1

A market is the demand for a commodity, in this case wood and wood products. Demand can be defined by the dollar value of these commodities. For the Emerald Bay project, the Forest Service analyzed three market conditions: the current market, a high market, and a low market. This analysis (Financial Efficiency Analysis) provides the decision maker with information regarding the current value of each alternative, and a forecast of the potential value of each alternative in high and low markets to reflect changes in the market conditions during the life of the project. This allows the decision maker to review all available options, and make reasoned tradeoffs. All species are appraised for primary manufacturing in Alaska except Alaska Yellow Cedar. Alaska Yellow Cedar may only be exported with the permission of the Regional Forester. This analysis is detailed in Chapter 3, Timber and Silviculture

Forest Service Response to HH 2-2

There are no potential road connections under Alternative B.

Forest Service Response to HH 2-3

The land area of the Emerald Bay project area is 7,845 acres. The Emerald Bay project area (VCU 7210) is only a small portion of the Ketchikan-Misty Fiords Ranger District (Table 1).

Table 1. Acres and relative size of the Emerald Bay project area and other areas of the Ketchikan-Misty Fiords Ranger District.

Area	Acres	Relative size of Emerald Bay project area (%)
Emerald Bay Project Area (VCU 7210)	7,845	
Lower Cleveland Peninsula	189,120	4.1
Lower Cleveland Peninsula and Revilla, Gravina, & Duke Islands	1,054,163	0.7
Ketchikan-Misty Fiords Ranger District	3,349,935	0.2

Alaska Department of Fish and Game annually mails surveys to hunters to estimate deer harvest throughout Southeast Alaska. These surveys provide estimated deer harvest by Wildlife Analysis Area (WAA) that the US Forest Service regularly uses for project analyses. The Emerald Bay project area covers 12 percent of WAA 1817 (Emerald Bay Final EIS Chapter 3-Subsistence).

Forest Service Response to HH 2-4

The Forest Plan directs us to avoid clearcutting when alternative methods can still meet the management goals of the Land Use Designation.

Appendix B

Here are my comments for the Emerald Bay EIS:

Due by May 5, 2000

Please complete the other side before sending in your comments.

If you have no comments at this time but wish to remain on the Emerald Bay mailing list, please return this form with the other side filled out. If your mailing label is correct, you may cut it out and tape it here.

Name: Jill Jacobs

Organization: (official representation only)

Address: P.O. Box 1721

City, State, Zip: Ward Cove Alaska 99928

Ketchikan District Ranger,

Your original proposed action for the Emerald Bay timber sale. Required no new road construction and no LTF due to your stated original need "to gather cost information on long distance helicopter yarding". Surely there is still such a need even if most of the Cleveland Peninsula has been removed from the designations in the 1999 TLMP ROD.

Each and every timber sale now and in the future in southeast Alaska will be in someone's backyard and will threaten someone's livelihood and/or subsistence. For this reason please reconsider alternative C if you are determined to make this first inroad on the Cleveland Peninsula at all. Although it is \$202.00 more per MBF, it may be well worth researching a more minimal impact alternative than alternative D on the area.

Wouldn't it be worth your while to find a way to have a timber sale without appeals, protests and the heavy footprint of traditional logging practices? \$202.00 is nothing compared to the economic loss sustained when there is eroding through old growth, sediment in formerly clear stream beds and sterile bays where LTFs have been.

Please don't change the roadless status of this project area. Please reconsider alternative A, or at the very least, alternative C.

Thank you, j-i-j-
(Jill Jacobs)

Please complete the other side, and mail to:

District Ranger, Ketchikan - Misty Fjords Ranger District, Tongass National Forest,

Attn: Emerald Bay EIS, 3031 Tongass Avenue, Ketchikan, AK 99901

Telephone: (907) 225-2148 FAX: (907) 225-8736 E-Mail: dfoxa10@ketchikan.afs.fed.us

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JJ #1

JJ #2

JJ #3

Forest Service Response to JJ 1

Although the need for information on long-distance helicopter-yarding costs is important, by far the greatest utility for it at the time of the Emerald Draft EIS was its application to the rest of the Cleveland Peninsula. Given the current legal environment surrounding timber harvest on Inventoried Roadless Areas, the future need for long distance helicopter yarding may prove to be minimal.

Forest Service Response to JJ 2

Yes it would, and we believe the range of alternatives considered will allow for a balance between resource value and economic return.

Forest Service Response to JJ 3

The Forest Plan designated the Emerald Bay project area as Timber Production. Although we must look to seek to meet market demand through management of these areas, we recognize the value placed on the roadless nature of the peninsula. We have expanded our range of alternatives to provide the decision maker with as many tools as possible to balance this concern with timber sale economics.

Appendix B

MAY 05 00 FRI 12 41 PM

KTB:SC

Bob Hunley

FILE NO. 088

P. 01

P. 1

301

April 17, 2000

Jerry Ingersoll
District/Monument Ranger
Attn: Emerald Bay
3031 Tongass Avenue
Ketchikan, Alaska 99901

Dear Mr. Ingersoll,

We have been looking over the DEIS for the proposed Emerald Bay Project. It is a shame the Emerald Bay area is under consideration for logging. There has been a generous amount of input concerning the area over the years, especially during the TLMP process. Residents of Union Bay as well as residents of Myers Chuck and others have voiced concern over logging activity in this area. Over the years we have brought up concerns again and again about situating a log dump on this side of the Cleveland. As far as logging goes, selective harvest with an emphasis on helicopter yarding has become acceptable, if it is done with care. New logging practices must be implemented to facilitate change from the "rape and plunder" tactics involved with clear cutting in the past.

JRH #1

After all of the years of planning and testimony you are side-stepping the implementation of the decisions of the Tongass Land Management Plan Revision, which went on for over a decade. The TLMP process was debilitating to small communities like ours and in Ketchikan where unreasonable people threatened those who did not share their clear cut mentality.

Emerald Bay is situated on the West side of the Cleveland Peninsula. It is located at a "pinch point" that joins the upper and lower Cleveland Peninsula. The entire Peninsula is inhabited by a diverse array of wildlife species. The area of Emerald Bay and the large estuary nearby at Big Vixen Inlet facilitate a large flyway for migrating waterfowl. The area is used more and more by the public during the spring, summer and fall months. During the winter it is used by travelers, fishermen and by the public.

JRH #2

It is absurd that a part of this decision would include any consideration of compromising the Old Growth Habitat Reserve by building a road right down the middle of it. NEPA precludes the Forest Service from taking any action, including the selection of an alternative requiring roading in this roadless area, before completion of the NEPA process for the National roadless Initiative. There should be NO road building and NO log transfer site at or near Emerald Bay.

JRH #3

JRH #4

The footnote, Water-Chapter 3-65 (insert 3/2000), is very

Forest Service Response to JRH 1

See Forest Service response to DW 1.

Forest Service Response to JRH 2

The Old-growth Habitat Reserve strategy and standards and guidelines in the Forest Plan recognized “pinch points” and other features that might affect the biogeography the Tongass. The Cleveland Peninsula is approximately 5 miles across between Emerald Bay and Spacious Bay. The portion of the project area that is available for timber harvest is approximately 0.75 miles wide at this point leaving 4.25 miles in Old-growth Habitat Reserves and other non-development Land Use Designations.

Forest Service Response to JRH 3

Forest Plan Standards and Guidelines allow for road construction through Old-growth Habitat Reserves if other alternatives are not feasible. The isolated nature of the Emerald Bay project area precludes any other means of roaded access.

Alternative D proposes to construct approximately 2.2 miles of low-impact road through the medium Old-growth Habitat Reserve. The road would be built to lower engineering standards than the typical Forest Service road: narrow right-of-way (60 feet), no ditches, and streams crossed with log stringer bridges (no culverts). All roads constructed would have the drainage structures removed after silvicultural activities are completed and the road would be further outsloped and revegetated with a native grass seed mixture. The road and its right-of-way would remove approximately 5 acres of productive old growth (POG) (out of 3,913 total POG acres) within the OGR. The road and its right-of-way would cover approximately 14 of 5,259 acres of the OGR.

Forest Service Response to JRH 4

NEPA does allow for separate analysis to occur simultaneously. At this time the NEPA process for the National Roadless Area Conservation Rule is complete, however, the US District Court, District of Idaho (Judge Lodge) enjoined the Forest Service from implementing all aspects of the rule on May 10, 2001.

MAY-05-00 FRI 12:41 PM KTR SC

FAX NO. 088

P. 02

Bun Hunley

P. 12

alarming. No Old Growth Habitat Reserves should be changed unless they are enlarged. If any logging occurs, conventional systems, (which I am assuming means business as usual, clear cutting), should not be used or even considered.

JRH #3a

We realize the Forest Service has underwent many, many changes in employees positions over the years. Therefore I do not expect those of you who have arrived over the past couple of years to really be too well informed unless you have read the input and listened to the public testimony, particularly concerning the Cleveland.

JRH #5

When the TLMP Revision Decision came out we were basically happy with the outcome, except for the possibility of logging activity at Emerald Bay. Emerald Bay is exactly where we would like all of the protected land designations to begin, for public recreation, hunting and fishing, trapping and subsistence, just to name a few of the important public uses of the area. In recent years some ecotourism has started in the area, there is a large potential for expansion of this type of forest use, which is very low impact and accentuates the importance of keeping the forest intact.

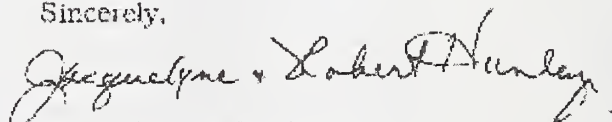
JRH #6

We were continually reassured that any logging activity in the area would be selective, helicopter yarding, which some of us have come to accept in concept, as far as logging goes. We realize the need to "change the face of logging" from the way it was done in the past. If logging goes on in this area we strongly urge you to stick to your original preference of Alternative C, with leanings towards Alternative A. Coming up with another alternative at this late date, after all of the talk of helicopter yarding and selective harvest, is unfair. Many people are probably not even aware of your addition of Alternative D.

JRH #5a

We have been year round residents here for 27 years, we are a commercial fishing family, our children were born at Myers Chuck in the 1970's. We have used the forests for many years, and look upon them with reverence and respect. We have seen many generations of careless logging practices after careless logging practices and we would like to see changes in logging techniques implemented within any plan to log in the Emerald Bay area.

Sincerely,



Jacquelyne and Robert Hunley
Long-time Residents of
Myers Chuck, Alaska

Forest Service Response to JRH 3a

As required by the Forest Plan, an interagency review of the small Old-growth Habitat Reserves (OGR) in and adjacent to the Emerald Bay project area has been completed. Biologists from the U.S. Forest Service, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game have determined that none of the small OGRs adjacent to the project area require alteration. The OGR in the project area is a medium and is therefore not a part of the OGR review process.

Forest Service Response to JRH 5

Although the Proposed Action did not call for road construction through the medium OGR, Alternative B did. NEPA requires that a full range of alternatives be analyzed, and Alternative D provides the opportunity to look at a lower-impact road than is typically proposed. Forest Plan Standards and Guidelines allow for road construction through Old-growth Habitat Reserves if other alternatives are not feasible. The isolated nature of the Emerald Bay project area precludes any other means of roaded access. The revised financial efficiency analysis of the helicopter only alternative shows it to be economically unfeasible under any market condition.

Forest Service Response to JRH 5a

The prescriptions proposed for Alternative D are the same as those proposed for Alternative C (100 percent uneven-aged management with primarily helicopter yarding). The road is included in Alternative D only to reduce helicopter flight distances to economic levels.

Forest Service Response to JRH 6

Management of the Cleveland Peninsula has long been contentious. However, the Forest Plan land use designation for the Emerald Bay project area is Timber Production. All developmental LUDs are evaluated when scheduling timber sale activities and many factors are considered.

The impacts of initial entries in one area must be weighed against the potential for cumulative effects of increased management in previously entered areas. The Forest Service believes that by considering low-impact roads, helicopter versus cable harvest, barge LTF, and uneven-aged management prescriptions, we have far exceeded the basic standards and guidelines for managing lands in a Timber Production LUD.

05-2000 01:05 PM TCS.

1 907 225 5827

P.O.



Tongass Conservation Society

PO Box 23377 Ketchikan, AK 99901

ph: (907) 225-5827 fax: (907) 225-5827

E-mail: tongass@ptalaska.net

Susan Marthaler, NEPA Coordinator
Ketchikan Ranger District
3031 Tongass Avenue
Ketchikan, AK 99901

May 5, 2000

Dear Susan,

Please accept these comments to the Emerald Bay Timber Sale DEIS. Tongass Conservation Society is a non-profit organization located in Ketchikan, Alaska with more than 100 members dedicated to our community and its environment. We have worked for years to preserve the ecological integrity of the Cleveland Peninsula. We have supported all efforts to find alternatives to roading and logging in the Cleveland.

We are very disappointed that the Emerald Bay Timber Sale is scheduled to be the first entry into Forest Service land on the Cleveland Peninsula. This sale is going to yield a tiny amount of timber for the industry with questionable benefit to the industry and to the public and yet it represents the beginning of the end for unfragmented habitat of the Cleveland Peninsula. With the present land use designations under TLMP this entry is a dead end and cannot support a second entry. Thus, the current proposal will only serve as a rationale for changes in designation in future management plans. The economics of Alternative D are insufficient to justify this sale and the harvest levels considered in Alternative B are completely out of scale with the landscape. Furthermore, only Alternative C is designed to meet the purpose and need expressed in the DEIS.

According to the Forest Service, Emerald Bay was designed to show how to "do it right" by heli-logging direct to barge, but it was ill-conceived from the beginning and the cost/benefit ratio was not favorable. So the Ketchikan Ranger District has undertaken to make it happen regardless of the original purpose by adding a road and LTF. We do not agree that this is an appropriate way to develop a timber sale. We believe that re-entry into watersheds that already have roads makes better sense than an initial entry into very small parcel on the magnificent Cleveland Peninsula in the interest of showing that the industry can't "do it right".

The two fundamental problems with this sale are that it is constrained by HCA and non-harvest LUD boundaries to such an extent that multiple entries cannot be justified yet 1) the scale needed to make a single entry sale is not acceptable and 2) and a responsible single entry will not be economical.

TCS #1

TCS #2

Forest Service Response to TCS 1

The Purpose and Need for the Emerald Bay project has always included exploring opportunities to apply uneven-aged management and gather information on helicopter yarding. Although various policy changes (see Final EIS, Chapter 1, Purpose and Need) have occurred that have changed the focus of the Emerald Bay proposal somewhat, the desire to apply uneven-aged prescriptions has always remained a key factor.

As work progressed on the project, additional analysis revealed Alternative C to be economically infeasible. The original (mid-market) appraisal of Alternative C, although negative, was not nearly as negative as the more recent analysis showed it to be. In order to provide an economically viable timber sale, while still providing uneven-aged prescriptions, we looked at the savings in helicopter fuel that could be had by building a low-impact road to shorten flight distances.

The Forest Plan dictates where management activities are to occur. While restricting management activities to areas where roading has already occurred makes sense with regards to maintaining roadless features, it makes less sense when considered in light of cumulative impacts to resources which can occur if all harvest activities is further confined to smaller areas.

Forest Service Response to TCS 2

Access to this area combined with acceptable public thresholds on its management does limit opportunities for economically feasible timber sales. Alternative D, however, which proposes 50-100 year entry levels for uneven-aged stand regulation, does provide economic opportunities by reducing the helicopter-yarding distances.

We applaud the efforts taken by the Forest Service to find alternatives to the traditional high-lead/logging road/LTF harvest so as to minimize the effect on a sensitive area, but we cannot go along with the choice to proceed with a project that ignores its purpose and need simply because staff has picked the wrong location for to satisfy that purpose and need. We do not concur that "The original need to gather information on long distance helicopter yarding has been reduced by the removal of most of the Cleveland Peninsula from the Timber Production designations." TLMP is only a short-term plan and designations have proven to be transitory. Furthermore, the Peninsula is not the only area where helicopter yarding is necessary to protect other important public resource values. Planned timber sales on Gravina, Chohmondeley and many other areas throughout the Tongass need better information on long-distance helicopter yarding. We believe that it is appropriate to return to the original purpose for this timber sale.

The Cleveland Peninsula is a precious resource which becomes more valuable by the day as the American public recognizes the value of a standing rainforest. If as is implied by the 3/2000 insert to the DEIS, the purpose and need cannot be met in this location, Alternative A is the only appropriate choice and this VCU should not be harvested at this time.

Sincerely,



Eric Hummel, Exec. Dir.

Tongass Conservation Society

TCS #3

Forest Service Response to TCS 3

Although the need for information on long-distance helicopter-yarding costs is important, the need for that information is overshadowed by other management direction. The Emerald Bay Timber Sale is located on lands designated by the Forest Plan for timber production.

Additionally, new information as to the economies of Alternative C came to light through application of the new (transaction evidence) appraisal system in use by the Forest Service today. The original (mid-market) appraisal of Alternative C, although negative, was not nearly as negative as our new appraisal system shows it to be. See the Financial Efficiency Analysis in Chapter 3. The additional cost of obtaining less-valuable information is not warranted.

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Southeast Alaska Conservation Council

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May 5, 2000

Jerry Ingersoll, District / Monument Ranger
 Attn: Emerald Bay
 3031 Tongass Ave.
 Ketchikan, AK 99901

Re: Comments on Emerald Bay Timber Sale DEIS

SENT VIA FAX

Dear Mr. Ingersoll:

The following comments are submitted on behalf of the Southeast Alaska Conservation Council (SEACC) on the Emerald Bay Timber Sale Draft Environmental Impact Statement (DEIS).

SEACC is a coalition of eighteen volunteer conservation groups in fourteen communities across Southeast Alaska, from Yakutat to Ketchikan. SEACC's individual members include Alaska Natives, subsistence users, commercial and sport fishermen, hunters and guides, tourism and recreation business owners, small timber operators and high value added wood product manufacturers, as well as concerned citizens from all walks of life. SEACC is dedicated to safeguarding the integrity of Southeast Alaska's unsurpassed natural environment while providing for balanced, sustainable use of our region's resources.

We are extremely disappointed that the Forest Service has changed its Preferred Alternative for this sale. The original Preferred Alternative, Alternative C, would cut between 8 and 12 million board feet of timber using selection logging methods and helicopter transfer to barges. This alternative would have reduced adverse impacts on the environment by eliminating harmful roadbuilding, clearcutting, and log dumps from the sale. We are quite disappointed to see the Forest Service abandon this Preferred Alternative and instead promote an alternative which requires building a road through an Old-Growth Reserve and the construction of a log dump.

I. THE DEIS FAILS TO EVALUATE A REASONABLE RANGE OF ALTERNATIVES.

NEPA requires that the Forest Service consider a reasonable range of alternatives for the proposed timber sale. See 40 C.F.R. § 1502.14(a). Unfortunately, the agency only considered action alternatives which contemplated logging two volumes of timber. Alternative B proposes to log between 14 and 16 mmbf of timber. Alternatives C and D both propose to log between 8 and 12 mmbf of timber. Instead of considering two alternatives which log the same amount of timber, the agency should have evaluated another alternative which logged less than 8 mmbf of timber. The agency was quick to abandon Alternative C as the Preferred Alternative because of concern over economics, but instead of considering an alternative which logged a smaller

SEACC #1

Forest Service Response to SEACC 1

The Forest Service is directed to evaluate a wide range of alternatives. We are also directed to produce economically viable sales. An alternative which proposed harvesting less than 8 MMBF was investigated in direct response to a public comment. This would require using even-aged prescriptions, cable yarding, and road construction in order to make an economically viable offering with the effects being similar to Alternative B. While this would result in smaller volume harvested, the road construction and clearcuts would make this alternative less responsive than the Selected Alternative to the commenter's overall concerns.

volume of timber, the agency simply amended the alternative by adding roads. The Forest Service should go back to the drawing board and examine an alternative which logs less timber.

In addition, the DEIS fails to address the specific environmental and economic effects of each alternative. For each alternative, the DEIS proposed to log a range of timber volumes. Alternatives C and D would log between 8 and 12 million board feet (mbf) of timber and Alternative B would log between 14 and 16 mbf of timber. It is unclear from the DEIS why the Forest Service failed to choose specific volumes for each alternative. Given the uncertainty of the amount of timber to be logged, it is impossible to adequately assess the environmental impacts due to each alternative. According to federal regulations, "[a]ccurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 C.F.R. § 1500.1(b) (emphasis added). Without an accurate description of the amount of timber to be logged under each alternative, it is impossible to accurately determine the environmental and economic effects of the proposed sale. The Forest Service must set precise volume figures for each alternative before proceeding any further with this sale.

SEACC #2

II. THE DEIS FAILS TO ADEQUATELY SHOW THAT THE AGENCY IS EXEMPT FROM SECTION 404 OF THE CLEAN WATER ACT.

According to the DEIS, Emerald Bay contains a high density of wetlands. In Alternatives B and D, the Forest Service proposes building 6.2 miles of road and 3.75 miles of road, respectively. Four of the 6.2 miles of road constructed under Alternative B will require wetland fill. The DEIS states that "new road construction proposed under the alternative meets the silvicultural exemption requirements of the Corps of Engineers 404 (b)(1) permitting process." DEIS at 3-64. However, to be exempt from the permit requirements, the agency must show that the proposed activities satisfy the requirements of the 404 exemptions and avoid the exception to the exemptions (also known as the "recapture" provision). *United States v. Akers*, 755 F.2d 814, 819 (9th Cir. 1986). The Forest Service fails to meet its burden of proof that it is exempt from Section 404 permit requirements.

SEACC #3

In order to qualify under the "normal silviculture" exemption, the proposed activities "must be part of an established ... silvicultural ... operation..." 33 C.F.R. § 323.4(a)(1)(i). Alternatives B and D call for logging and roadbuilding in a currently unlogged, unroaded area. Because these alternatives will bring "an area into silvicultural use" and will "change the use of the land," the Forest Service is not entitled to a Section 404(f)(1)(A) exemption. The fact that part of this area was classified for timber production in the modified TLMP, as well as in previous Tongass Plans, does not satisfy this requirement. Programmatic EISs do not irretrievably commit forest plans to a particular use. Such action must wait until a site-specific evaluation is completed under NEPA. This area cannot, therefore, be part of an "established ... silvicultural ... operation" until after a timber sale has been conducted.

To qualify for the "forest roads" exemption, the Forest Service must also assure that road building activities are conducted in accordance with Best Management Practices (BMPs). The agency must establish that the BMPs will assure that flow and circulation patterns and chemical and biological characteristics of the navigable waters are not impaired, that the reach of the

SEACC #4
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SEACC's comments on
Emerald Bay DEIS

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Forest Service Response to SEACC 2

Additional site-specific volume information was gathered between the Draft and Final which allowed us to set specific harvest volumes for each alternative. This information along with the specific environmental effects of each alternative is included for each resource in Chapter 3 of the Final EIS.

Forest Service Response to SEACC 3

The 404 permit process is used to regulate dredge and or fill of wetlands. The harvest activities planned on the Emerald Bay project area will not result in dredge or fill of wetlands or the conversion of any wetlands to non-wetland status. (Forest roads are covered under the forest road exemption and discussed below.) The Emerald Final EIS (Chapter 3, Water section) states that a temporary increase in soil moisture is likely as a result of timber harvest. This is not a conversion of forested wetland to upland or a dredge or fill. Since wetlands are not being converted to upland a 404 permit is not required. The timber harvest proposed in the Emerald Bay project area is part of the ongoing silvicultural operation and is thus exempt from 404.

Forest Service Response to SEACC 4

The Forest Service agrees that the Best Management Practices listed in 33 CFR 323.4 (a) (6) must be followed. The 33 CFR BMPs that apply to each road segment are listed on the road cards in Appendix 2, Road Cards, of the Record of Decision.

navigable waters is not reduced, and that any adverse effect of the aquatic environment will be otherwise minimized." See 33 U.S.C. § 1344(i)(1)(E); see also 33 C.F.R. § 323.4(a)(6).

SEACC #4
cont.

The DEIS reports that "[w]ater-related (including riparian areas and wetlands) resource protection prescriptions and applicable BMPs are listed on unit and road cards, and in the fisheries and soil resources reconnaissance reports." DEIS at 3-65. Absent from the DEIS, however, is any information or analysis showing that the implementation of these BMPs will assure the maintenance or enhancement of flow, circulation, or reach of navigable waters within the project area, including wetlands. In fact, the Forest Service lacks any credible scientific basis for establishing that agency BMPs will accomplish the statutory requirements that would entitle them to this exemption. According to last year's Tongass Monitoring Report, "[c]urrently, the Tongass NF does not have an approved method to evaluate the effectiveness of BMPs related to impacts of management activities to wetland functions and values." See Tongass National Forest: Annual Monitoring and Evaluation Report for Fiscal Year 1998 at p. 85 (hereinafter USFS FY98). The report goes on to acknowledge that the agency's evaluation of the effectiveness of the standards and guidelines adopted in the revised Tongass Plan for minimizing impacts to wetlands and their associated functions and values is "inconclusive." *Id.* at 87.

SEACC #5

More recently, a team of Forest Service watershed specialists has come up with a list of "thoughts and recommendations for addressing this monitoring question" but the "evaluation of the effectiveness [the] Standards and Guidelines on wetland functions and values is still in progress." See Tongass National Forest: Annual Monitoring and Evaluation Report for Fiscal Year 1999 at pp. 115, 117 (hereinafter USFS FY99). Furthermore, the FY 1999 Monitoring Report also provides documentation of the lack of effectiveness of agency BMPs across the Tongass. The report reveals that over half of 265 Class I crossings with culverts failed to meet fish passage standards. See USFS FY 99 at 28, see also Forest Service Fish Culvert Data Summary (attached). The DEIS provides no supporting evidence that the agency will fully and properly apply these BMPs, or that these measures will effectively maintain the flow, circulation, or reach of affected waters, if implemented properly.

SEACC #6

III. THE DEIS FAILS TO ADEQUATELY SHOW THAT ALL ALTERNATIVES WILL COMPLY WITH ALASKA'S ANTIDEGRADATION REGULATION.

The Clean Water Act mandates that each state's water quality standards include an antidegradation policy. See 33 U.S.C. §§ 1313(d)(4)(B), (e)(2)(A); (§§ 302(d)(4)(B), (e)(2)(A)). The United States Supreme Court has also interpreted the Clean Water Act's mandated state water quality standards to require an antidegradation policy. See PUD v. Washington Dept. of Ecology, 511 U.S. 700, 718, 128 L. Ed. 2d 716, 723, 114 S. Ct. 1900 (1994). Alaska's antidegradation policy, 18 AAC 70.015, was approved by the EPA in 1997. See 18 AAC 70.015.

SEACC #7
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The DEIS states that "[i]nmeasurable direct, indirect, or cumulative effects to fisheries resources are not anticipated." DEIS at 3-32. The DEIS lacks the evidence to back this up, especially in light of recent findings regarding fish passage problems through Tongass culverts. How can the agency be sure of insignificant effects on watersheds or fisheries when the agency's past practices have led to fish passage problems on hundreds of salmon streams? To comply

SEACC's comments on
Emerald Bay DEIS

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Forest Service Response to SEACC 5

The Soil, Floodplain and Wetlands Resources Report for the Emerald Bay project area discussed the effects of forest roads on wetlands. The report cited one study completed on a forest road outside Wrangell, Alaska that found the hydrologic effects of a forest road bisecting a gently sloping poor fen limited to within approximately 50 feet of the road (Swanston and others, pers. comm., 1997).

Recently, Masters student Katherine McGee studied the effects of forest roads on surface and subsurface flows in a wet forested soil near 12-Mile Arm on Prince of Wales Island. McGee found that the road ditch intercepted nearly all of the area precipitation from upslope contributing areas. However, the amount of road intercepted flow did not translate into equivalent changes in subsurface water levels, rather the changes in subsurface water levels are typically minimal. Where changes do occur, they tend to be concentrated immediately above the cutbank and below the road fillslope (McGee, 2000). The Forest Service agrees that the effects of forest roads on wetlands are only beginning to be studied in Southeast Alaska. The Forest is in the process of developing monitoring protocols for forest roads on wetlands as required by the Forest Plan. At this time the information gap is considered acceptable based on past experience and the information provided by Swanston and others (pers. comm., 1997), and McGee (2000). The Tongass National Forest Annual Monitoring and Evaluation Report for Fiscal Year 1999 states that based on the existing information adjusting wetland Standards and Guidelines at this time is not necessary (page 117).

Forest Service Response to SEACC 6

The Forest Service agrees that the Road Condition Survey has identified many culverts that are not passing fish. TLMP 1997 established fish passage standards that are higher than previous forest-wide standards for fish passage. Additionally, updated interpretation of the 404f guidelines indicates that the Corps of Engineers expects fish passage for both resident and anadromous fish in most circumstances. Passage is now required for both resident and anadromous fish regardless of the quality or quantity of upstream fish habitat. On the Emerald Bay project area, fish passage will be provided when the road is active and all roads will be put in long-term storage following timber harvest. Log stringers will be used to cross all Class I, II, or III streams. Log stringers remove any chance of flow or fish passage restriction. All stringers and culverts will be removed following harvest. Through this action, fish passage will be insured, and reach, flow, and circulation of waters will not be affected to the point of converting a wetland to non-wetland status.

Forest Service Response to SEACC 7

On the Emerald Bay project area the designated beneficial use of the streams is for aquatic life. Based on initial monitoring of turbidity (TNF Monitoring and Evaluation Report for FY 1999), turbidity as a result of culvert installation will likely be within State Water Quality Standards for Aquatic Life. The Emerald Bay project proposes to use and then remove log stringer bridges for all crossings, which exceeds BMP requirements. (See Fisheries Section of Chapter 3). The assumption that BMPs will be effective in preventing degradation of water quality for the turbidity standard is supported.

Forest Plan Riparian Standards and Guidelines were developed by an interagency group composed of scientists and resource managers. Because there is a lack of peer-reviewed scientific literature that effectively describes the range of management associated impacts to the aquatic environment, the group followed AFHA recommendations and established conservative S&Gs that are intended to maintain or restore the natural range and frequency of aquatic habitat conditions on the Tongass National Forest. When S&Gs are followed, cumulative effects to the aquatic resource are not expected.

In the 1997 Record of Decision the Regional Forester wrote, "Accordingly, the decision was made to develop new riparian management direction for the Final EIS that would apply to all watersheds across the Forest, wherever land-disturbing activities are allowed. Another decision was made to incorporate all the recommendations made in the Anadromous Fish Habitat Assessment (AFHA) report for additional protection because AFHA is the most comprehensive and credible scientific review of the of the measures needed to protect fish habitat on the Tongass." He further stated, "The standards and guidelines and other direction of the Forest Plan I am approving today meet or exceed all of those recommendations made in the Anadromous Fish Habitat Assessment (AFHA) report for additional protection, and include some of the features from option 1. These standards and guidelines will be applied in all watersheds of the Forest, and are sufficient to protect fish habitat and provide for sport and commercial fisheries and subsistence." Although the 1999 Record of Decision has since been vacated by a US District Court of Alaska judge, The Emerald Bay Timber Sale remains consistent with the direction stated above.

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with NEMA, the Forest Service must show that its management plans will not adversely affect fish habitat:

"No management practices causing detrimental changes in water temperatures or chemical composition, blockages of water courses or deposits of sediment shall be permitted in those areas which seriously affect water conditions or fish habitat."

36 C.F.R. § 219.27(e)

In order to qualify for a variance from anti-degradation requirements and water quality criteria, the Forest Service must demonstrate that "allowing lower water quality is necessary to accommodate important economic or social development in the area where the water is located" and that "the resulting water quality will be adequate to fully protect existing uses." See 18 AAC 70.01 5(a)(2)(A)&(C). The DEIS fails to provide sufficient information and analysis to support these required findings.

SEACC #7
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IV. THE FOREST SERVICE MUST COMPLY WITH EXECUTIVE ORDER 11990.

Executive Order 11990 prohibits construction in wetlands where practicable alternatives exist and requires that "all practicable measures" be implemented to minimize harm to wetlands. Alternatives B and D both require construction of roads across wetlands. According to the DEIS, the action alternatives were developed to address the Purpose and Need for the project. Obviously, Alternative C is a practicable alternative. Since it is a practicable alternative and does not require road construction across wetlands, the Forest Service must choose it over Alternatives B and D to comply with Executive Order 11990.

SEACC #8

The DEIS fails to note whether the construction of a new LTF in Alternatives B and D will impact wetlands. Given that the LTF would be constructed in the intertidal zone, we must assume that some wetlands will be affected. The DEIS reports that 23 acres of the estuarine system will be impacted by the lag dump. The Forest Service needs to show the effect of this LTF construction on wetlands, if any. If any wetlands will be affected by the LTF, the Forest Service must choose an alternative which doesn't require a new LTF such as Alternative C, since this alternative is "practicable" and does not require wetland fill for LTF construction.

V. THE DEIS FAILS TO FULLY ANALYZE THE IMPACTS OF ALTERNATIVES ON OLD-GROWTH RESERVES.

Alternatives B and D both require lag dump and road construction within a Medium Old-Growth Reserve, effectively bisecting the reserve. However, the DEIS fails to disclose and evaluate the impacts of such road construction on this old-growth reserve, and the old-growth reserve system in general.

Alternative D proposes to build 2.2 miles of road through the old-growth reserve. The DEIS reveals that the road would result in the loss of approximately 5 acres of productive old-growth from the reserve. DEIS at 3-12 (insert 3/2000). However, the DEIS fails to provide any

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SEACC's comments on
Emerald Bay DEIS

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Forest Service Response to SEACC 8

Executive Order 11990 allows that: "the Nation may attain the widest range of Beneficial Uses of the environment without degradation and risk to health or safety, each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. In making this finding the head of agency may take into account economic, environmental, and other pertinent factors." In choosing an alternative the agency may take into account economic, environmental, and other pertinent factors when attempting to attain the widest range of beneficial uses of the environment, without degradation and risk to health and safety. The agency does not have to choose Alternative C to comply with Executive Order 11990. The economic analysis in the Final EIS shows that Alternative C is expected to yield negative returns, not only to the government, but also to the purchaser. Under any realistic market scenario, we do not believe that the timber sale in Alternative C could be sold. The "practicality" of Alternative C is questionable in light of the public's outcry against below-cost timber sales. The decision maker has the latitude to choose any of the alternatives.

analysis of the effect of roading on the reserve's ability to meet Tongass Forest Plan Goals and Objectives.

According to the Forest Plan, one goal of the Old-Growth Habitat LUD is to "[m]aintain areas of old-growth forests and their associated natural ecological processes to provide habitat for old-growth associated resources." Forest Plan at 3-76. The DEIS, however, fails to show how Alternative D will enable the agency to maintain the "natural ecological processes of the area to provide habitat for old-growth associated resources." The construction of a road through the reserve will fragment the old-growth habitat and degrade the natural ecological processes of the area. Absent from the DEIS, however, is any analysis the road's fragmentation of the reserve.

The objectives of the Old-Growth Habitat LUD include:

"Provide old-growth forest habitats, in combination with other Land Use Designations, to maintain viable populations of native and desired non-native fish and wildlife species and subspecies that may be closely associated with old-growth forests..."

"Maintain components of flora and fauna biodiversity and ecological processes associated with old-growth forests..."

and

"To the extent feasible, limit roads, facilities, and permitted uses to those compatible with old-growth forest habitat management objectives."

Some of the wildlife species that inhabit the area are especially sensitive to the impact of roadbuilding. Brown bears are one such species. According to the 1997 TLMP brown bear panel, "increased roading in brown bear habitat would most likely result in increased mortality due to legal hunting, illegal killing, and defense of life and property," Meade, 1997, p.2. The 1996 brown bear panel evaluations stated that the Forest Service's "first priority" should be "to retain currently unroaded watersheds in a roadless condition." Iverson, 1996, p.3. Given the known adverse effects of roads on brown bears, building road through the Emerald Bay OGR is clearly incompatible with old-growth forest habitat management objectives. The Forest Service should have at least evaluated the impact of the proposed road on the ability of the OGR to provide adequate habitat for brown bears. However, it did not. In fact, the DEIS fails to even mention the presence of brown bears in the area.

When faced with such an incompatible use in an OGR, the agency must limit such use "to the extent feasible." The Forest Plan defines feasible as:

"Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, technical, and safety factors. In evaluating feasibility, the following are considerations: 1) the effectiveness and practicality of the measures being considered, and, 2) the long- and short-term costs of the measures and the effect of these costs on long- and short-term economic viability of projects or programs."

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SEACC #9
cont.

Forest Service Response to SEACC 9

Forest Plan Standards and Guidelines allow for road construction through Old-growth Reserves if other alternatives are not feasible. The isolated nature of the project area precludes any other means of road access. Alternative D proposes to construct approximately 2.2 miles of low-impact road (see Transportation) through the medium Old-growth Habitat Reserve. The road would be built to lower engineering standards than the typical Forest Service road: narrow right-of-way (60 feet), no ditches, and streams crossed with log stringer bridges (no culverts). All roads constructed would have the drainage structures removed after silvicultural activities are completed and the road would be further outsloped and revegetated with a native grass seed mixture. The road and its right-of-way would remove approximately 5 acres of productive old growth (POG) (out of 3,913 total POG acres) within the OGR. The road and its right-of-way would cover approximately 14 of 5,259 acres of the OGR.

Alternative D includes construction of 3.8 miles of road, 2.2 miles of which cross a medium Old-growth Reserve. This road would be closed to the public during timber sale operations and put in storage upon completion of silvicultural activities. This road will impact 14 acres of the 12,439-acre medium Old-growth Reserve, only 5 acres of which are old-growth habitat. The disturbance of 5 acres of productive old growth (14 total acres) is unlikely to have a significant impact on the ability of the Old-growth Habitat Reserve system on Cleveland Peninsula to meet the objectives outlined in the Forest Plan.

The Forest Plan (page 4-114) and accompanying Forest Plan Implementation Policy Clarification (TPIT August 1998, page A-5) directs us to evaluate the need for additional protection of brown bear foraging sites. It further directs us to consult with the Alaska Department of Fish and Game in identifying and managing important brown bear foraging sites.

Wildlife biologists from the U.S. Forest Service, U.S. Fish and Wildlife Service, and Alaska Department of Fish and Game visited the project area in June 2000 and walked the proposed road corridor through the Old-growth Habitat Reserve and most of the anadromous habitat closest to the estuary at Emerald Bay. No important brown bear foraging sites were identified in the Emerald Bay project area.

Brown bears are unlikely to be greatly affected by this project because 1) no important brown bear foraging sites were identified in the project area, 2) nearly all of the anadromous fish habitat occurs within the Old-growth Reserve, thus receiving the protection measures identified in the Forest Plan Brown Bear riparian standards and guidelines, 3) the anadromous fish habitat that occurs outside the OGR does not provide foraging habitat for bears, and 4) the proposed road through the OGR is greater than 500 feet from any anadromous stream (see Final EIS, Chapter 3, page 3-67).

Obviously, the agency can proceed with the sale without such use by implementing Alternative C and not building a road through the OGR. The DEIS's analysis of Alternative C shows that it better meets the Purpose and Need for the proposed project. While the DEIS's economic analysis shows the logging cost of Alternative C to be greater than Alternatives B and D, Alternative C rates much higher in terms of environmental factors. In addition, when considering the short- and long-term costs of the various alternatives and the effect of those costs on the economic viability of projects or programs, it appears that Alternative C has a lower long-term costs. While Alternatives B & D may have better short-term economics, it also has greater long term costs. By building a permanent log dump and carving a road corridor through an OGR, Alternatives B and D will negatively affect the long-term ability of the OGR to meet Forest Plan objectives. Thus not building through the OGR, as outlined in Alternative C is indeed feasible and should be selected over alternatives which build such a road.

SEACC #9
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VI. THE DEIS FAILS TO EVALUATE IMPACTS ON BROWN BEAR POPULATIONS.

The Cleveland Peninsula is currently home to healthy brown bear populations. However, as mentioned above, absent from the DEIS is any mention of brown bears or impacts to their populations from the proposed sale. Given the sensitivity of brown bears to roads and the increased sensitivity of brown bears on the mainland, leaving out such impacts represents a gross oversight.

In addition, the DEIS fails to follow the Forest Plan Standard and Guidelines regarding brown bear habitat. The Forest Plan requires that the agency:

"[e]stablish forested buffers, where available, of approximately 500 feet from the stream at sites where, based upon the evaluation, additional protective measures are needed to provide cover among brown bears while feeding, or between brown bears and humans." Forest Plan at 4-114, WILD112VLB.

SEACC #10

The Forest Service must also consult with the Alaska Department of Fish and Game in identifying and managing important brown bear foraging sites. It is unclear from the DEIS whether such consultation has taken place. It is clear, though, that no brown bear buffers have been laid out in any of the logging units for this sale. The Forest Service's failure to consult with ADP&G and to consider brown bear buffers violates the Forest Plan, and therefore violates the National Forest Management Act (NFMA).

VII. THE DEIS FAILS TO FOLLOW THE RECOMMENDATIONS OF THE ANADROMOUS FISH HABITAT ASSESSMENT (AFHA) BY FAILING TO CONDUCT A WATERSHED ANALYSIS

The Emerald Bay project area contains important anadromous and resident fish streams. These streams are home to coho, chum, and pink salmon, as well as cutthroat trout and Dolly Varden char. To compare the effects of various alternatives on watersheds, the DEIS simply lists the amount of stream crossings and miles of unbuffered Class IV streams under each alternative. Other than a general sense of which alternatives will have more impact on fisheries and other watershed functions, the effects analysis presented in the DEIS provides very little site-specific analysis of the effects of various alternatives on fisheries and other watershed functions. In order

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Forest Service Response to SEACC 10

As mentioned in the response to SEACC 9, wildlife biologists from the U.S. Forest Service, U.S. Fish and Wildlife Service, and Alaska State Department of Fish and Game visited the project area in June of 2000. No important brown bear foraging sites were identified. Additionally, any areas that meet the criteria for brown bear foraging sites, i.e. anadromous fish streams, occur predominantly within the Old-growth Habitat Reserve. The anadromous fish habitat that occurs outside of the Old-growth Habitat Reserve does not provide foraging habitat for bears. Had brown bear habitat been identified, no buffers would have been necessary because the proposed road and all proposed units are greater than 500 feet (the buffer width required) from any anadromous fish habitat.

to give decisionmakers and the public a better understanding of the site-specific effects of various alternatives, the agency should complete a cumulative watershed effects analysis, as recommended by AFHA.

The AFHA report concluded that three (3) very important protective measures were needed to ensure fish habitat protection, including "completion of cumulative watershed effects analyses to evaluate natural and human disturbances." *AFHA Report Synthesis* at 14. The report further elaborated that "[m]ore comprehensive watershed analyses comparable to those in the PACFISH Strategy, if just applied on priority watersheds where timber will be harvested, will provide for both timber harvest and anadromous fish habitat protection." *Id.* at 15 (emphasis added). This recommendation responded to problems identified recognized by the AFHA team and expert reviewers with the existing project-level planning process, including the failure to:

- thoroughly evaluate potential cumulative watershed effects;
- have sufficient "project-scale inventories for conducting site-specific assessments in sale planning and layout;"
- take a "holistic approach in describing the important watershed functions and processes;"
- take a long-term view of the effect of clearcutting and roading on watershed processes and functions at the landscape scale; and

See AFHA Report, Appendix C, *An Evaluation of the Effectiveness of Current Procedures for Protecting Anadromous Fish Habitat on the Tongass National Forest* 38 (Sept. 1994). These experts concluded that conducting watershed analysis at the front-end of project planning would provide the Forest Service with essential information necessary to adequately protect fish habitat and watershed functions, and updating important resource inventories in a timely manner. *Id.* at 34. The DEIS for this timber sale, however, fails to include a watershed analysis and thus fails to ensure that fish habitat and watershed functions will be protected.

The recommended cumulative watershed effects analyses called for by AFHA would help the Forest Service determine:

"... how best to manage watersheds with steep unstable slopes, highly productive fisheries, productive timber lands, important and sensitive wildlife resources, high value recreation and visual resources, cultural resources, and other considerations. ... Watershed analyses would also provide for assessments and management approaches more consistent with site-specific ecological processes and functions, resulting in a systems approach to management."

AFHA Report Synthesis at 12.

The AFHA Fish Habitat Analysis viewed watershed analysis as playing a critical role in providing the essential information needed for implementing the Revised Tongass Plan at the project level.

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SEACC #11
cont.

Forest Service Response to SEACC 11

Under sub-heading B. Applicability in Appendix J, the Forest Plan states: "Watershed Analysis must be completed for any project decision that incorporates site-specific adjustment of process group standards & guidelines as provided for in the Riparian Forest-wide Standards and Guidelines. Watershed Analysis is otherwise not required, but may be performed for a watershed if the responsible line officer determines it to be appropriate." The appropriate Line Officer for Emerald Bay Timber Sale determined that a Watershed Analysis was not required for Emerald Bay because site-specific process group standards & guidelines were fully implemented on all Class I, II and III riparian areas.

Even though a Watershed Analysis was not required, several analysis components of the Region 10 Draft Watershed Analysis Protocol (1997) were completed prior to the Emerald Bay Timber Sale Draft EIS. The Emerald Bay Timber Sale planning record includes the Emerald Bay Fish and Water Resource Report. In that report, Emerald Bay fish production and water quality was considered and compared to all larger (greater than 1.0 sq. mi.) watersheds on the Cleveland Peninsula in a landscape assessment. Additionally, the report divided the Emerald watershed into sub-basins and analyzed those sub-basins in terms of sediment transport and storage capability in a watershed assessment. Results from the watershed assessment were used to protect sensitive areas at the site level above and beyond standard and guideline requirements. Additionally, all Class I, II, and III streams adjacent to harvest units were foot surveyed during this project. Indirect and cumulative effects, as stated in the Final EIS, Chapter 3, Fish and Water section, are expected to be negligible.

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p. 8

"Logging system and transportation plans are the primary foundation for current timber-sale project plans. Current planning is often too narrowly focused on the design of individual harvest units and road segments, so the interdisciplinary team has difficulty addressing broad ecosystem management and cumulative effects issues. Current project planning relies heavily on information from reconnaissance resource inventories. Time and resources needed to validate these reconnaissance inventories and to collect site-specific information are often limited during project planning. The practical opportunities for adjusting unit and road designs during layout, to mitigate problems or concerns missed in planning, are somewhat limited. Watershed analysis provides a mechanism to interject essential information on watershed and fish habitat characteristics into the 'front-end' of project planning, and also provides a structured framework for updating needed resource inventory information in a timely manner."

SEACC #11
cont.

APHA, Appendix C, at 38 (emphasis added).

VIII. THE DEIS USES THE DEER HABITAT CAPABILITY MODEL INCORRECTLY WITHOUT SUFFICIENT JUSTIFICATION.

In the DEIS, the Forest Service uses the deer habitat capability model to determine the effects on deer habitat for each alternative. The deer habitat capability model was developed to determine the effects of clearcutting on deer habitat. In the DEIS, however, the Forest Service uses this model to describe the effects of partial cutting on deer habitat. The agency simply prorates the effect on deer habitat by multiplying the amount of retention in each unit by the difference between an unharvested unit hsi score and a clearcut unit hsi score. The DEIS fails to include any scientific evidence justifying this interpretation. In fact, according to a recent study by the Alaska Department of Fish and Game, some selection logging methods may have the same effect as clearcutting. "When all, or nearly all, of the mature trees in that small area are removed by logging, the stand response is indistinguishable from that of a clearcut." See Kirchhoff, Matthew and Thomson, Simon R.G., Effects of Selective Logging on Deer Habitat in Southeast Alaska: a Retrospective Study, 13 (1998)(attached).

SEACC #12

IX. THE DEIS FAILS TO ADEQUATELY SHOW THAT THE EMERALD BAY TIMBER SALE IS NECESSARY TO MEET MARKET DEMAND FOR TONGASS TIMBER.

Appendix A of the DEIS states that the market demand for timber for the next 10 years is expected to be 160 mmbf per year. DEIS at A-15. This statement fails to accurately describe the demand estimates provided by Brooks and Haynes, which estimates demand for timber over periods shorter than 10 years. For example for FY 2001, the year in which the Forest Service plans to offer timber from Emerald Bay, Brooks and Haynes estimates timber demand to be between 96 and 130 mmbf. See Brooks and Haynes, Timber Products Output and Timber Harvests in Alaska: Projections for 1997-2010 (Sept. 1997). The Forest Service must provide a reasoned basis for ignoring the demand estimates of Brooks and Haynes.

SEACC #13
cont. next
page

SEACC's comments on
Emerald Bay DEIS

8

Forest Service Response to SEACC 12

For the purposes of the Emerald Bay project deer habitat model analysis, we gave all partially harvested units the same habitat capability score as clearcut units. This provides a conservative estimate of habitat capability since it seems likely that partially harvested units will have higher habitat values than clear-cut units (see Final EIS, Chapter 3, Wildlife section).

Forest Service Response to SEACC 13

Section 101 of the TTRA and page 3-144 of the Forest Plan directs the Forest Service to seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand from such forest, and (2) meets the market demand from such forest for each planning cycle, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources and subject to applicable law. Appendix A (pg. 7)) of the Emerald Bay Final EIS provides a discussion of the overall demand for Tongass timber in Southeast Alaska. It describes the market demand analysis conducted for the Forest Plan revision and provides an in depth discussion of the four “pools” of timber being managed in order to have timber available to meet market demand. Chapter 1 of the Emerald Bay Final EIS explains how this project relates to the Forest Plan.

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P. 10

According to the largest private timber land owner in Southeast Alaska:

For a variety of reasons, the timber market in which Sealaska sells its timber -- the Pacific Rim market -- remains glutted, even in the absence of the USFS's timber-dumping program. The market is particularly grim for hemlock

The result is a market that can take no more; indeed, hemlock exports to Japan from North America have already declined by 80% since 1980. ...

But despite all this, the federal government continues to force-feed the Pacific Rim market with surplus timber.

The inevitable short-term result will be to further depress already eroded timber prices. ...

Letter from Loeschner, President and CEO of Sealaska Corp. to The Honorable Ted Stevens (July 12, 1999)(attached).

The agency's conclusion that more timber from the Tongass is needed now to supply an overly saturated and price-depressed market is simply unreasonable. Instead of preparing and offering below cost and deficit timber sales from roadless areas, the Forest Service should be investing its scarce resources in offering small sales to local operators off the existing road system.

X THE DEIS'S ECONOMIC EFFICIENCY ANALYSIS IS INADEQUATE.

As required by the Forest Service Handbook and the Revised Tongass Plan, the Forest Service performed an economic efficiency analysis for all action alternatives. The economic efficiency analysis is inadequate, however, because the agency failed to compare the total economic benefits of the project to the total economic costs. See FSH 2400.18, chapter 30, 32.32. "Economic costs are the sum of the financial costs, non-market costs, and non-forest Service costs." *Id.*, sec. 32.24. The FSH further defines "direct" economic costs as including "negative impacts on resources that have an economic value." See *id.*, chapter 10, 13.05.

Unfortunately, the Forest Service never quantified the non-market values or calculated the non-market costs resulting from implementing this project on this currently roadless area. The potential negative economic impacts from the approved project on the scenic, wildlife, and wildland values of the project area, including opportunities for wild lands recreation and nature-based and adventure tourism, are simply not taken into account when evaluating the economic efficiency of this project. The Forest Service violated NEPA because the FEIS fails to ensure appropriate consideration of "presently unquantified environmental amenities and values." See 42 U.S.C. § 4332(2)(B). Analysis presented in the DEIS impairs the fair consideration of the adverse environmental and economic effects of this project by the public and decision maker by only evaluating the economic costs and benefits to the timber sale purchaser and agency.

SEACC's comments on
Emerald Bay DEIS

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SEACC #13
cont.

SEACC #14

Forest Service Response to SEACC 14

The Forest Service is not required to quantify the non-market benefits and costs associated with every timber sale. However, the Forest Service is required to insure that unqualified environmental amenities and values are given appropriate consideration in decision making along with economic and technical considerations. The Emerald Bay Final EIS analyzed the potential effects of the project on unqualified environmental amenities and values such as water resources, recreation, and scenery, wilderness, subsistence and social concerns (Forest Plan 3-100, 3-212, 3-161, 3-351).

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XI. THE DEIS FAILS TO DISCLOSE AND EVALUATE CUMULATIVE IMPACTS.

There are several past, present, and reasonably foreseeable developments on the Cleveland Peninsula, including the Frosty Timber Sale, the Swan Lake - Lake Tyee Inter tie, the Canal-Hoya Timber Sale, and the Pt. Warde Timber Sale. Nowhere in the DEIS is there any detailed analysis of the specific cumulative effects of these management activities to forest resources on the Cleveland Peninsula and the users of those resources. Without such an analysis, the DEIS violates NEPA.

SEACC #15

XII. THE FOREST SERVICE MUST AWAIT THE CONCLUSION OF THE ROADLESS AREA RULE BEFORE APPROVING ANY NEW ROAD CONSTRUCTION IN ROADLESS AREAS

The Forest Service is currently considering a federal rulemaking to protect roadless areas across the National Forest system, possibly including the Tongass. NEPA prohibits agencies from committing "resources prejudicing selection of an alternative before making a final decision." 40 C.F.R. § 1502.2(f). Thus, before making a final decision on whether or not to protect roadless areas at Emerald through the roadless area rule, the Forest Service cannot lawfully allow the construction of roads there, because doing so would prejudice the final decision on the roadless rule. See 40 C.F.R. § 1506.1(c)(3). The Forest Service must therefore await the completion of the roadless area rule before approving any road construction in the project area.

SEACC #16

Conclusion

We urge the Forest Service to return to its original Preferred Alternative, Alternative C, or else drop this sale completely. We strongly believe that roadbuilding and logging are incompatible activities on the Cleveland Peninsula. The elimination of roadbuilding and the exclusive employment of selection logging methods as outlined in Alternative C is the only way to make the proposed project tolerable.

Thank you for accepting these comments.

Best Regards,



Marc Wheeler
Grassroots Organizer

SEACC's comments on:
Emerald Bay DEIS

10

Forest Service Response to SEACC 15

A complete cumulative effects analysis is displayed in Chapter 3 of the Final EIS. Past, present and reasonably foreseeable future activities are described in the Final EIS, Chapter 3 on page 3-32.

Forest Service Response to SEACC 16

On January 12, 2001 the Roadless Area Conservation Rule was published in the Federal Register. This rule, scheduled for implementation on May 12, 2001, would prohibit road construction and most timber harvest in previously unmanaged portions of inventoried roadless areas. This rule contains mitigation language for the Tongass National Forest exempting timber sale projects for which a Notice of Availability of a Draft Environmental Impact Statement has been published in the Federal Register prior to publication of this rule. the Emerald Bay project meets these exemption criteria. Currently, the Forest Service is enjoined by the US District Court, District of Idaho, from implementing this rule, however, this project could move forward regardless of the Roadless Rule status.



FOREST CONSERVATION COUNCIL

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APR 26 2000

Ketchikan-Misty Fjords
Ranger District

April 15, 2000

Jerry Ingersoll, District Ranger
Ketchikan/Misty Fjords Ranger District
Tongass National Forest
648 Mission Street
Ketchikan, AK 99901

ROUTING:

<input checked="" type="checkbox"/>	District Ranger
<input type="checkbox"/>	Rec/Wildms
<input type="checkbox"/>	Fish/Wildl
<input type="checkbox"/>	Timber
<input checked="" type="checkbox"/>	Silv/Plan
<input type="checkbox"/>	Leads/Min
<input type="checkbox"/>	SSS/Fac
<input type="checkbox"/>	Discovery Only

RE: FCC/NFPA Comments on the Emerald Bay Timber Sale Draft EIS

Dear Mr. Ingersoll,

Please accept the following comments by the National Forest Protection Alliance (NFPA) and Forest Conservation Council (FCC) on the Emerald Bay Timber Sale draft EIS. These comments are made on behalf of NFPA, FCC, and our individual, business, and organizational members.

The Emerald Bay Timber Sale will damage social and economic uses and values associated with natural forests (including forests that are affected by beneficial natural disturbance) for the benefit of the timber industry, even though non-timber uses and values are far more important to local communities and the regional economy. The project will jeopardize the viability of species that thrive in interior forests, naturally disturbed forests and old growth through clearcutting and road building, intervene in natural disturbance processes that are vital to ecosystem sustainability, degrade water quality and watershed condition, and impact economically important marine ecosystems. The analysis on which the Forest has relied is flawed and biased in a number of ways, rendering any potential decision arbitrary and capricious. Following are our specific concerns with the Emerald Bay Timber Sale and draft EIS.

- **Cumulative Effects.** The Forest Service has failed to adequately address the cumulative effects of this project and others on the Cleveland Peninsula and greater Revillagigedo Island. The Forest Service Environmental Policy and Procedures Handbook sets the standard for analysis of cumulative effects:

"Individual actions when considered alone may not have a significant impact on the quality of the human environment. Groups of actions, when added together may have collective or cumulative impacts, which are significant. Cumulative effects, which occur, must be considered and analyzed without regard to land ownership boundaries. Consideration must be given to the incremental effects

FCC/NFPA
#1 cont. next
page

Western Regional Office
P.O. Box 22428
Santa Fe, New Mexico 87502
(505) 986-1163

Southeastern Regional Office
P.O. Box 276266
Boca Raton, Florida 33427
(561) 347-0949

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3526 Frey Run Road
Linden, Virginia 22642
(540) 264-9651

Forest Service Response to FCC/NFPA 1

We agree that the Draft EIS did not fully address the cumulative impacts of past, present, and reasonably foreseeable future harvest. We have improved on this in the Final EIS.

Additionally, FCC/NFPA comments that, "In discussing deer populations after full timber harvest (2054), the EIS predicts that 28 deer per acre will remain in 2054, but this number ignores subsistence use of deer, hunting of deer, and poaching of deer and further, ignores increased road densities that will result from ineffective closures."

The Forest Plan Standards and Guidelines for wolves require that the Forest Service provide habitat for 13 deer / square mile. Additional Forest Service direction changed this number to 17 deer / square mile based on the wolf conservation assessment (Person et al. 1996) to "provide for current levels of deer harvest by hunters, trappers, and wolves" (Person et al. 1996).

Future road construction on the Cleveland Peninsula will be consistent with current rules, regulations and Standards and Guidelines.

of past, present, and reasonably foreseeable related future actions of the Forest Service, as well as those of other agencies and individuals.¹

In the case of the Emerald Bay Timber Sale draft EIS, it is apparent the Forest Service has not fulfilled this direction. Instead, it has chosen to account only for impacts associated with federal lands in the Emerald Bay Project Area. The draft EIS suffers from two shortcomings: no mention is made of activities other than timber harvest that may bear on the cumulative effects of the Emerald Bay timber sale such as recreation, hunting, poaching, etc and worse cumulative effects are not even discussed in several sections of the EIS.

Several of the identified issues that are treated in the Emerald Bay Timber Sale draft EIS do not even mention cumulative effects; those issues include: Fisheries Resources, Heritage Resources, Marine Environment, Log Transfer Sites, and Related Facilities, Recreation, Scenery, and Socioeconomics. Further, several sections of the EIS only casually mention cumulative effects, including Silviculture and Timber Management, Soils and Geology, Transportation, and Wildlife. Where cumulative effects are addressed, no mention is made of past harvest, other land ownerships on the Cleveland Peninsula and greater Revillagigedo Island, or impact outside of timber harvest. Activities outside of timber harvest are especially important for wildlife resources. For instance, in discussing deer populations after full timber harvest (2054), the EIS predicts that 28 deer per acre will remain in 2054 but this number ignores subsistence use of deer, hunting of deer, and poaching of deer and further, ignores increased road densities that will result from ineffective closures. If these other activities were accounted for, deer populations might well be below 13 per acre, "the minimum for providing prey for wolves." Further, this only accounts for these impacts in the Emerald Bay Project Area and ignores any potential impacts on deer populations from other parts of the peninsula or the island itself.

The USFS has run afoul of its obligations under FSH 1905.15, 15.1 to analyze cumulative effects in the planning area.

Cumulative effects are to be given full and adequate consideration at the project level. The Tongass National Forest is falling into a trend towards not adequately addressing cumulative effects. This is a larger trend, as evidenced by the recent findings of the USDA Office of Inspector General:

"The incomplete [cumulative effects] analyses resulted from Forest Service not including the required discussion of past,

FCC/NFPA #1
cont.

¹ FSH 1905.13, 15.1

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present, and reasonably foreseeable future actions and their effect on the project area's environment."²

FCC/NFPA #1
cont.

- **Socioeconomics.** The Emerald Bay EIS has taken a step in the right direction by incorporating an economic efficiency analysis. However, the economic efficiency analysis falls well short of including established and accepted methodologies of valuating non-market goods and services. The Forest Service has failed to adequately place value on any economic impacts outside of those directly associated with the agency and timber related employment. No attempt is made to fairly evaluate recreation, subsistence, aesthetics, etc. and compare them to timber value. This is especially important considering 100 percent of jobs in the Cleveland community are related to lodging or recreation (EIS at 3-42) and a significant portion (12%) of the Meyers Chuck community's subsistence food needs are derived from the project area (EIS at 3-49).

FCC/NFPA #2

No value at all is attributed to jobs and income outside of the timber sector. As with other projects planned on the National Forests of Alaska and throughout Region 10, the Forest Service has failed to complete an economic analysis of the Emerald Bay Timber Sale that provides the public with a full and fair accounting of net economic benefits.

Forest Conservation Council and the NFPA has raised these economic issues in the context of numerous appeals in Region 10 (see for example Sea Level, Canal Hoya, and Indian River appeals) and provided examples of acceptable techniques for evaluating non-timber values. We incorporate, by reference, these appeals for a more complete description of our issues on this subject.

- **Wildlife Viability.** The Emerald Bay Timber Sale activities are likely to jeopardize the viability of species that find optimal habitat in interior forests, forests with well-developed structures, and forests naturally disturbed by wind and insects. These include threatened, endangered, and sensitive species, as well as management indicator species.

For many of these species, the Forest Service has no up-to-date population data describing population numbers, locations, and trends, nor monitoring data on which the agency can rely to determine that the actions proposed in the context of the Emerald Bay Timber Sale will maintain numbers and distribution of these species sufficient for insuring long term viability. The draft EIS instead relies on the TLMP to secure wildlife viability. This is a classic Forest Service shell game. The TLMP does not guarantee the long-term viability of several wildlife species, as asserted in the Emerald Bay DEIS, placing the burden to the site-specific mitigation and planning, however by referring back to the Modified TLMP these site-specific issues are avoided. Because the Forest Service has no population data for most species adversely affected by the proposed management activities, and because what data there is suggests that such species are declining and otherwise at risk, the Forest Service runs afoul of viability and diversity requirements set forth in forest planning regulations, 36 C.F.R. § 219.19 and § 219.26. Species for which

FCC/NFPA #3
cont. next
page

² USDA Office of Inspector General Evaluation Report, 1999, Forest Service Timber Sale Environmental Analysis Requirements, Washington, D.C. No. 08801-10-A1 January 1999.

Forest Service Response to FCC/NFPA 2

The Forest Service is not required to quantify the non-market benefits and costs associated with every timber sale. However, the Forest Service is required to insure that unqualified environmental amenities and values are given appropriate consideration in decision making along with economic and technical considerations. The Emerald Bay Final EIS analyzed the potential effects of the project on unqualified environmental amenities and values such as water resources, recreation and scenery, wildlife, subsistence, and social concerns.

Forest Service Response to FCC/NFPA 3

The Forest Plan Old-growth Habitat conservation strategy (Forest Plan Final EIS Appendix N) considers the best available scientific information within an acceptable level of risk inherent in projecting management effects. It does not require site-specific species population data, relying rather on habitat information. As stated in the Biodiversity and Old Growth section of Chapter 3, Forest Plan viability analyses concluded that the revised Forest Plan "will provide reasonable assurance of maintaining viable and well-distributed populations of wildlife across the Tongass National Forest for 100 years."

the Forest Service must have population information to make viability determinations are threatened and endangered and Region 10 sensitive species, and in particular the goshawk.

FCC/NFPA #3
cont.

- **Fragmentation.** Habitat fragmentation will result from the Emerald Bay Timber Sale, and is an underlying cause of many of the adverse effects on native species. As such, habitat fragmentation deserves a rigorous analysis. Forest Service literature is replete with references regarding the adverse effects of fragmentation on forest habitats. Before the Emerald Bay Timber Sale decision notice can be signed the cumulative effects of fragmentation from this sale and other past and reasonably foreseeable future actions must be accounted for. The Forest Service has, in its possession, models and techniques for assessing the effects of fragmentation. One such model, the "Distributed Wildland Resource Information System" was developed in 1987 for use on the Forest Service GIS systems, and provides the Forest Service with the tools to evaluate fragmentation in regards to patch size, perimeter (edge) to interior ratios, and other variables. (Id) The Forest Service has applied such models in the past to gauge the effects of fragmentation in the context of timber sales affecting old growth pine and mixed conifer habitats in other regions. In the Augur Creek Timber Sale EIS on the Fremont National Forest in Oregon, for example, the Forest Service used its Mt. Hood National Forest Fragmentation Model to quantify the amount of interior and edge before and after proposed timber harvest.³ On the Payette National Forest, the Forest Service used a fragmentation model to assess the effects on interior and edge mixed conifer forest before and after the proposed Deep Copper Timber Sale.⁴

FCC/NFPA #4

In the case of the Emerald Bay Timber Sale, the Forest Service has failed to apply any of these models, nor any technique for evaluating fragmentation and resulting edge effects.

- **Log Transfer Facilities and Marine Fisheries.** LTFs have the potential of harming the immediate marine environment as well as the larger marine environment. Several petroleum discharges have been reported from LTFs and at least one has not met BMP 14.27.⁵ Further, marine bark deposition below LTFs has exceeded either thickness or continuous coverage standards according to the Alaska Water Quality Standards. No information is provided in the Emerald Bay Timber Sale draft EIS concerning the condition of LTFs in the area. Further, the cumulative effects of past and currently operation LTFs in the near vicinity are certain to cause cumulative effects on the marine environment. Almost no analyses of the direct, indirect, or cumulative effects of LTFs operating simultaneously is provided.

FCC/NFPA #5

- **Other Issues.** Several other issues are worth mentioning and deserve attention in the final EIS. The financial efficiency section in the Emerald Bay EIS discloses negative values,

FCC/NFPA #6
cont. next
page

³ USDA Forest Service, Fremont National Forest, 1991: Final Environmental Impact Statement for the Augur Creek Timber Sale.

⁴ USDA Forest Service, Payette National Forest, 1990: Draft Environmental Impact Statement for the Deep Copper Timber Sale.

⁵ USDA Forest Service, Annual Monitoring & Evaluation Report for Fiscal Year 1998, Tongass National Forest.

Forest Service Response to FCC/NFPA 4

We are aware of the existence of models that assess the effects of fragmentation and have used them where we thought they were required and appropriate. Fragmentation was analyzed in the Forest Plan. The largest block of productive old growth (POG) in the project area will be protected in the medium Old-growth Habitat Reserve and remain unfragmented. The uneven-aged prescriptions will create no openings greater than two acres, further reducing the affects of fragmentation.

Forest Service Response to FCC/NFPA 5

Initial reconnaissance of potential LTF sites was done in 1982 in accordance with the Alaska Timber Task Force Siting Guidelines for LTFs. Additional reconnaissance was done in 1998 and 1999 to ensure that the potential sites met the ATTF Siting Guidelines. An underwater survey of the marine habitat at the potential sites was completed by the USFWS in the spring of 2000, underwater and upland topographic surveys were completed during the summer of 2000. With this information the design of the land-to-barge log transfer facility will be completed for permit application. The nearest LTF is at Sunny Bay, which is approximately 3 miles north of the proposed Emerald Bay LTF. Operations on these two projects are not scheduled to occur simultaneously.

Forest Service Response to FCC/NFPA 6

Alternative D, which is a combination of Alternatives B and C, was developed for the very reasons you have mentioned.

i.e. deficit sales, for all but Alternative B under high market values. How is it the USFS can justify offering timber to the industry at the expense of the American taxpayer? It is especially egregious to make the taxpayer subsidize a dying public lands industry. In 1998, the Forest Service could only sell 22% of the timber put on the auction block in Alaska, and a regional economist estimated that much of the timber put up for sale in 1999 will remain unsold.⁶

FCC/NFPA #6
cont.

Another problem with the Emerald Bay EIS is the failure to carefully disclose the amount of old growth proposed for harvest that falls into the various productivity categories compared to what will remain. The EIS is careful to emphasize the amount of old growth that will remain after harvest and even after 2054, but it fails to mention what portion of that old growth will be high productivity and thus most beneficial to wildlife and other values.

FCC/NFPA #7

Finally, 71% of the project area is mapped as wetlands and several of the Unit Cards indicate that entire units are designated as wetlands. However, there is no mention of the USFS obtaining Army Corps of Engineers permits or any mention at all of the Emerald Bay timber Sale's relationship to the Clean Water Act.

FCC/NFPA #8

Thank you for the opportunity to comment on the Emerald Bay Timber Sale. Please send FCC and NFPA the final Decision Notice and any supporting NEPA documentation.

Sincerely,



Bryan Bird
Forest Conservation Council
Southeast Regional Office

⁶ USA Today, December 21, 1998: "Across the USA: News from Every State, Alaska."

Forest Service Response to FCC/NFPA 7

This information is provided in the Biodiversity and Old Growth section in Chapter 3 of the Final EIS (page 3-9).

Forest Service Response to FCC/NFPA 8

A silvicultural exemption applies to the Emerald Bay project.

Appendix B

Jerry Ingersoll
District/Monument Ranger
Ketchikan-Misty Ranger District
3031 Tongass Avenue
Ketchikan, AK 99901
May 5, 2008

Attention: Emerald Bay IDT Leader

Dear Sir or Madam:

From the perspective that average timber harvest from the Tongass from 1909 to 1952 averaged about 40mm board feet annually, the harvest level increase that has occurred since 1952 is analogous to an industry crashing a party. Now after nearly fifty years of much larger average annual harvests the reductions in ASQs have elicited the indignant response from that industry that theirs is the party being crashed.

Section 101 of TTRA says: "Subject to appropriations, other applicable law, and the requirements of the National Forest Management Act (P.L. 94-588); except as provided in subsection 9d) of this section, the Secretary shall, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources, seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets the market demand from such forest for each planning cycle."


MS #1

In several instances stated in the purpose and need of the Emerald Bay DEIS you have deleted the above highlighted and seek only to address market demand. The Cleveland Coalition said that there would not be any roads on the Cleveland. Roads are not required for helicopter harvest of timber. Even conceding to exclusive helicopter logging and other roadless scenarios leaves considerable latitude for timber extraction from the Cleveland.

MS #2

In light of the harvest levels that have been imposed upon the Tongass during the last half-century as well as the unique nature of the Cleveland Peninsula I can not support this or any roading/clearcut proposal for the Emerald Bay Sale.

Thank you.

Sincerely,

Mike Salice
PO Box 7603
Ketchikan, AK 99901

Forest Service Response to MS 1

We agree with this statement.

Forest Service Response to MS 2

The Purpose and Need for the Emerald Bay project was designed to balance the need to meet market demand with that of providing resource protection and addressing public concerns.

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P. 62



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1689 U. Street, Room 119
ANCHORAGE, ALASKA 99501-5126

ER00/82

May 5, 2000

Mr. Jeremiah Ingersoll
District/Monument Ranger
Attention: Emerald Bay
U.S. Forest Service
3031 Tongass Avenue
Ketchikan, Alaska 99901

Dear Mr. Ingersoll:

The Department of the Interior (DOI) has reviewed the January 10, 2000, Draft Environmental Impact Statement (Draft EIS) for the proposed Emerald Bay Timber Sale near Ketchikan, Alaska as well as the March 20, 2000, letter and attached inserts describing proposed changes to the Draft EIS. We believe the following comments need to be taken into account when preparing the Final EIS.

As discussed below, Fish and Wildlife Service (FWS) representatives will be visiting the Emerald Bay Timber Sale area in June 2000 to gather additional information necessary for completing our analysis of the potential effects of this timber sale. Therefore, we are requesting the opportunity to submit additional comments to you by July 31, 2000. We believe those comments will also need to be taken into account when preparing the Final EIS.

BACKGROUND

The Cleveland Peninsula is a large, timbered, roadless area northwest of Ketchikan, Alaska. It provides habitat for diverse fish and wildlife resources, especially large mammals such as brown and black bear, wolves, mountain goats, Sitka black-tailed deer, and wolverine. Wildlife species uncommon in southeast Alaska, such as moose and mountain lion, have also been documented on the Peninsula. Wildlife habitat on the Cleveland Peninsula is naturally fragmented by large bays penetrating the peninsula from both sides, which create a number of "pinch points." Some interior areas of the peninsula are connected by low elevation passes that are migration corridors for many wildlife species.

The Cleveland Peninsula is easily accessible from Ketchikan, Meyer's Chuck, and Wrangell and is an important recreation and subsistence-use area for these residents. Due to its outstanding and accessible natural resource values, development of the Cleveland Peninsula has been a topic of controversy for many years. Primarily because of the recreation and subsistence values of this area, the Governor of Alaska requested that it be one of four additional areas on the Tongass National Forest to remain roadless and unlogged (March 27, 1997, letter from Tony Knowles to the Secretary of Agriculture). In 1999, Under Secretary of Agriculture for Natural Resources and Environment,

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P. 03

Jim Lyons, reissued the Record of Decision (ROD) for the 1997 Tongass Land Management Plan (Tongass Plan) and changed most of the development Land Use Designations on the Cleveland Peninsula to non-development Land Use Designations. Although currently a roadless area, the Emerald Bay project area was not included in the area protected by Under Secretary Lyon's decision. Nonetheless, it abuts non-development Land Use Designations on three sides.

FWS representatives visited the Cleveland Peninsula in June 1998 with U.S. Forest Service (USFS) and Alaska Department of Fish and Game (ADFG) biologists. The group reviewed proposed small Old Growth Reserves (OGR) identified in planning for a Cleveland Peninsula Timber Sale. We were not aware of the proposed Emerald Bay Timber Sale. FWS representatives, therefore, did not visit the proposed Emerald Bay project site at that time.

On January 10, 2000, the USFS issued the Draft EIS for the Emerald Bay Timber Sale. Comments on the Draft EIS were due to the USFS on April 15, 2000. On March 20, 2000, the USFS provided a project update that proposed adding another alternative for consideration, and identified this addition as the new preferred alternative. The comment period for the Emerald Bay Timber Sale was extended until May 5, 2000. As a result, FWS representatives have not had the opportunity to conduct an on-site inspection of the project area that would be impacted by the new alternative with the proposed road and log transfer facility.

DOI #1

The new preferred alternative includes two aspects that were not previously considered: (1) road construction through an OGR, and (2) development of a log transfer facility (LTF). Potential effects of the proposed road and LTF raise concern that the scoping process may not have been sufficient to identify fish and wildlife resource issues for consideration in the Draft EIS. As stated above, FWS representatives plan to visit the Emerald Bay project area in June 2000. We hope that USFS staff can join them. Additional comments and suggestions resulting from this field visit, which will be submitted to you in our July 2000 letter, need to be taken into account when preparing the Final EIS for this timber sale.

DOI #2

We are primarily concerned with the impact of the proposed project on local populations of fish and wildlife and their habitats, and the potential impacts on fish and wildlife-oriented recreation and subsistence uses. Issues related to these concerns include: old-growth habitat and connectivity, road management, LTFs, second-growth forest management, wetlands, fisheries, and wildlife species of interest such as the Sitka black-tailed deer, gray wolf, mountain goat, and Northern goshawk. Specific concerns for each of these issues are described below.

OLD GROWTH HABITAT AND CONNECTIVITY

Management of old-growth forest habitat for wildlife in the project area is complicated by the dissected geography of the Cleveland Peninsula. The Cleveland Peninsula is located just north of Revillagigedo Island, and is bounded by higher mainland elevation to the northeast and marine waters elsewhere. The proposed Emerald Bay Timber Sale is located on the Cleveland Peninsula at a point where land constricts between Spacious Bay and Emerald Bay. This situation heightens concerns for isolation of habitat and associated impacts to wildlife.

DOI #3a

Forest Service Response to DOI 1

The requested visit occurred in June of 2000.

Forest Service Response to DOI 2

Alternative D was introduced to clarify the range of alternatives from which the deciding official could choose, particularly in light of new economic information surrounding Alternative C. The alternative required no new analysis as its impacts fall between those already considered in Alternatives B and C.

Alternative D proposes to use the same uneven-aged silvicultural prescriptions as does Alternative C. Road 8645900-2 is the only road proposed in Alternative D. It is designed as a low-impact access road to shorten the helicopter-yarding distances.

Comments received following your requested field visit have been incorporated into the Final EIS.

Forest Service Response to DOI 3a

The Old-growth Forest Habitat Conservation strategy and standards and guidelines in the Forest Plan recognized “pinch points” and other features that might affect the biogeography the Tongass. The Cleveland Peninsula is approximately 5 miles across between Emerald Bay and Spacious Bay. The portion of the project area that is available for timber harvest is approximately 0.75 miles wide at this point leaving 4.25 miles in Old-growth Habitat Reserves and other non-development Land Use Designations. Some timber will be harvested in the pass between Emerald Bay and Spacious Bay (Unit 12). This harvest will be on only one side of the pass. There is also a low-elevation connection to Spacious Bay available nearby to the west along the coast.

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Within the Emerald Bay Timber Sale area, impacts to some wildlife can be reduced by protecting low-elevation passes that serve as wildlife corridors. One such corridor is at the headwaters of Emerald Creek. The function of this wildlife corridor could be maintained by removing or reducing in size the timber sale units near the drainage's headwaters. FWS representatives intend to gather information specific to this wildlife corridor during their June 2000 site visit. Resulting observations and recommendations, which will be submitted to you in our July 2000 letter, need to be taken into account when preparing the Final EIS for this timber sale.

DOI #3a cont.

The preferred alternative proposes construction of a new road through a medium-sized OGR. We believe the proposed road may be inconsistent with the Tongass Plan. Transportation Operations Guidelines in the Tongass Plan (Page 3-80) state, "New road construction is generally inconsistent with Old-growth Habitat Land Use Designation objectives, but new roads may be constructed if no feasible alternative is available." We believe that because other alternatives without roads are deemed feasible for analysis in the EIS, their availability raises questions about the consistency of road construction within the OGR. This should be examined in the Final EIS.

DOI #3b

Construction of a road through an OGR potentially reduces the amount of old-growth habitat within the reserve by more than the width of the road right-of-way. "Core" old growth is distinct from "edge" old growth. The structure of the canopy of edge old growth may be similar to that found in the core, but the nearness to openings such as those created by roads, alters the understory and microclimate conditions, the effects of which have been shown to change the composition of adjoining habitats for distances of greater than 1,000 feet in each direction from the opening (Concannon 1995). We are concerned that construction of a new road, as proposed in the preferred alternative, may unnecessarily compromise the effectiveness of the OGR system on the Cleveland Peninsula. This concern is heightened by the natural isolation and fragmentation of the Peninsula, and should be further discussed in the Final EIS.

ROAD MANAGEMENT

The Emerald Bay project area is currently roadless. Construction and use of logging roads will substantially alter the character of the area, affect future development options, and, we believe, degrade the Cleveland Peninsula's value as fish and wildlife habitat. Effects of road construction on fish and certain wildlife species are well documented, and include destruction of aquatic habitat and increased susceptibility of game species to harvest by hunters and trappers.

DOI #4a

Increased sedimentation due to road construction and use is a significant threat to fish spawning and rearing habitats. Both chronic, long-term sedimentation from road run-off and acute sediment input from debris slides are detrimental to in-stream habitat supporting resident and anadromous fish species. Improperly placed or poorly maintained drainage structures can also block fish passage to upstream habitat. Recent surveys conducted by ADFG indicate that on the Tongass National Forest, more than 50 percent of existing system road crossings over resident or anadromous fish-bearing streams block fish passage and eliminate upstream habitat from use. Given the concern for fish habitat on existing roads and the maintenance needs of existing roads, we question whether it is prudent to risk the fish stocks by expanding the road network into this relatively pristine area. We believe this should be further analyzed in the Final EIS.

DOI #4b

Page 3 of 10

Forest Service Response to DOI 3b

We agree that the impacts of road corridors can extend past the width of the corridor. However, Alternative D includes construction of 3.8 miles of road, 2.2 miles of which cross a medium Old-growth Reserve. This road would be closed to the public during timber sale operations and put in storage upon completion of silvicultural activities. This road will impact 14 acres of the 12,439-acre medium Old-growth Reserve, only 5 acres of which are old-growth habitat, none of which is classified as high-value productive old growth.

Forest Service Response to DOI 4a and b

We do not believe that logging roads built for the Emerald Bay Timber Sale will cause aquatic habitat degradation and harm fish stocks. We do agree that numerous studies have documented decline in aquatic habitat as a result of past roading activities. Proposed roads in the Emerald Bay Sale have been designed to avoid past practices that could lead to aquatic habitat degradation. Instead of culverts, all fish streams and Class III water quality streams will be crossed by stringer bridges. Road location avoided stream crossings when possible. Streams that are crossed are done so at perpendicular angles to minimize roading in riparian corridors. Steep, unstable terrain was avoided in road design; therefore, full bench road construction is minimal. Roads in the Emerald Bay Timber Sale will be built to minimum required standards, thereby reducing the footprint on the land, and minimizing hydrologic interception. Roads constructed in Emerald Bay will be decommissioned after logging activities are complete and stringer bridges will be removed. We believe that these practices will protect aquatic habitat and fish stocks.

Mortality of many game and furbearing species increases as road densities increase. For example, Person et al. (1996) found that wolf harvests on Prince of Wales Island doubled where road densities averaged 0.66 miles per square mile, tripled at 1.19 miles per square mile, and quadrupled at 1.63 miles per square mile, as compared to unroaded conditions. Brown bears are also adversely affected by roads. A brown bear assessment panel considered human-caused mortality and declines in fish production as significant concerns on the Tongass National Forest (Tongass Plan, p. 3-416). Data presented to the panel showed correlations between miles of road and bear mortality on northeast Chichagof Island. Local extirpations in the vicinity of human habitation, and behavioral avoidance of roads by bears, have also been demonstrated. For each of the cases described above, roads facilitated exploitation that caused population declines sufficient to require ADFG to increase restrictions on hunting and trapping opportunities. If roads are constructed, we recommend they be closed for public access, and that the methods for closure be identified in the Final EIS.

DOI #4c

We believe helicopter logging is less damaging than road-based cable logging if sensitive nesting areas or other high value habitats are avoided. Costs for operators are typically higher for helicopter logging, but we cannot discern the long-term cost of the roaded alternatives because the cost of road building, maintaining selected road closures, and long-term maintenance of permanent roads are not clear. We believe that the Final EIS should clearly address these costs because they may have a bearing on the prevention of long-term degradation of fish and wildlife habitat.

DOI #4d

In summary, we recommend that, to address the issues identified above, the Final EIS include an expanded analysis of the potential effects of road construction and long-term road maintenance.

SILVICULTURE

If even-aged management is prescribed, we recommend an aggressive pre-commercial and commercial thinning schedule to promote wildlife habitat regrowth. Accumulation of thinning slash can impede use of an area by deer, further reducing the low deer habitat quality within maturing stands (e.g., stands in stem exclusion phase). We recommend that thinning slash be removed, perhaps by piling and burning. Furthermore, we recommend that within harvest units, mature trees with substantial rot, twist, or other timber "defects" be left standing where possible, rather than cut and either left onsite or discarded later. Such trees provide little or no value to operators, but can provide substantial benefits to snag-dependent wildlife. Where such trees pose hazards to workers nearby, we recommend leaving adequate buffers of uncut trees.

DOI #5a

Although little second-growth forest exists in the Emerald Bay project area, we recommend that existing second-growth stands be evaluated for their value as wildlife habitat. Where such stands interrupt travel corridors or otherwise negatively affect wildlife populations, the USFS should identify opportunities to improve the wildlife habitat potential. Possible actions could include thinning (with slash removal), patch cutting, topping, girdling or other modifications to promote forage production, increase structural diversity, and accelerate growth of individual trees. We believe these topics should be further discussed in the Final EIS.

DOI #5b

Forest Service Response to DOI 4c and d

Little evidence was found in the project area of use by brown bear or wolves; however, effects of road on their populations were considered. In Alternative D, the road would be built to lower engineering standards than the typical Forest Service road: narrow right-of-way (60 feet), no ditches, and streams crossed with log stringer bridges (no culverts). All roads constructed would be closed to public use during and following operations. Drainage structures would be removed, stringer bridges pulled and the road would be further outsloped and revegetated with a native grass seed mixture.

Forest Service Response to DOI 5a

Alternative D does not propose even-aged management; therefore, no precommercial thinning would be prescribed.

Forest Service Response to DOI 5b

During initial project inventory in 1998, some of the young growth areas were examined and the potential for riparian enhancements discussed. Most of the earlier harvest was partial and the stands have many "legacy" trees, the young growth being quite advanced in size. Agreement was reached that cultural treatments would provide little if any additional benefit to fish and/or wildlife (Final EIS, Chapter 3, page 3-13).

LOG TRANSFER FACILITIES

For more than 25 years, the FWS has worked cooperatively with the USFS in the siting of proposed LTFs. FWS conducts underwater investigations of proposed LTFs, and makes recommendations about placement and design of facilities. Because FWS has not been contacted by USFS to continue these collaborative efforts for the Emerald Bay Timber Sale, we are not familiar with the information and analyses referred to in the Draft EIS. We request that you provide FWS representatives with a copy of your "Evaluation of Log Transfer Facilities" report (cited on page 3-20 of the Draft EIS) prior to their June 2000 site visit so additional comments on the proposed LTF can be included in our July 2000 letter to you. FWS representatives will be available during their June 2000 site visit to assist with underwater investigation at the site of the proposed LTF in Emerald Bay.

DOI #6a

Our experience conducting underwater investigations at existing LTFs suggests that impacts are minimized where barges are used instead of log rafts. Therefore, if an LTF is constructed, we believe fewer adverse impacts will result from use of a small barge facility, rather than other land-based transfer methods. Use of a small barge facility will avoid log storage and handling in marine waters, which results in accumulations of woody debris that, in turn, frequently impacts site productivity for many years. While transfer of logs to barges does not eliminate discharges of woody debris, accumulations are much less.

DOI #6b

It appears that the infrastructure supporting the LTF may encroach on known bald eagle nests. The FWS knows of three bald eagle nests located in the Emerald Bay area. The proposed road described in Alternatives B and D appear to pass through the 330-foot buffer zone of two nests. The map in the Draft EIS only depicts one of these nests. FWS will be sending you, under separate cover, documentation of the location of bald eagle nests with which to update the Final EIS.

DOI #6c

We believe that conditions outlined in the Interagency Agreement (May 9, 1990) between the USFS and the FWS should be followed to address bald eagles. A request for variance to the Interagency Agreement will be needed if an encroachment within the 330-foot buffer zone by a planned land use activity appears unavoidable. Options other than construction of a road and LTF within 330 feet of bald eagle nests at Emerald Bay may exist. FWS representatives will be available to discuss those options during their June 2000 site visit.

WETLANDS, BEACHES, AND RIPARIAN ZONES

Placement of fills in wetlands and other waters of the United States is regulated by the U. S. Army Corps of Engineers. Current regulations, however, allow an exemption from the otherwise applicable regulations for silvicultural activities, including construction of roads used exclusively for timber harvest, provided that "Best Management Practices" are implemented. We recommend that a monitoring program be developed to evaluate implementation and effectiveness of Best Management Practices intended to minimize impacts to wetlands in the Emerald Bay project area. This should be discussed in the Final EIS.

DOI #7a

Monitoring should be done to ensure that specified beach and riparian buffers are established as required and effective at protecting both water quality and fish and wildlife habitat. We believe the

DOI #7b cont.
next page

Forest Service Response to DOI 6a

The assessment was forwarded to you prior to your site visit on June 7-8, 2000.

Forest Service Response to DOI 6b

Your assessment is correct and has been documented by studies in the past. A barge facility is planned for transport of logs for this project. While the barge type transfer facility does appear to have less impact on the marine environment, the barge facilities tend to have a greater impact on the upland environment.

Forest Service Response to DOI 6c

We agree and will comply with the interagency MOU.

Forest Service Response to DOI 7

The Forest Service developed methods for BMP implementation monitoring in the early 1990s. The revised Forest Plan includes Forest-wide BMP Implementation and Effectiveness monitoring. The Forest is in the process of developing protocols for wetland BMP effectiveness monitoring. See the Tongass National Forest annual Monitoring and Evaluation Report for Fiscal Years 1998 and 1999. Wetland BMP implementation and effectiveness monitoring is a Forest Plan issue and is dealt with on a Forest-wide basis. The harvest units and roads on the Emerald Bay project will receive basic BMP implementation monitoring and may be part of a wetland effectiveness monitoring strategy, however that strategy is still being developed. Also refer to response to SEACC 5 and SEACC 7.

Forest Service Response to DOI 7b

Forest Plan Monitoring requires us to do such monitoring. It will be included in the Monitoring Plan.

current proposed action will compromise the designated beach fringe with both a road and an LTP, and that additional mitigation efforts should be included in the Final EIS.

DOI #7b
cont.

FISHERIES AND RIPARIAN

Although cited in the Draft EIS, the Literature Cited section does not contain references for the "Fish and Water Resources Report" (1999) or the "Soils and Water Report for the Emerald Bay Project Area" (1999). We request these references be added to the Final EIS Literature Cited section, and copies of these reports be provided to FWS representatives prior to their June 2000 site visit.

DOI #8

The Draft EIS states that the previously harvested riparian habitat contains large woody debris and pools and is providing quality habitat for salmonids; however, large wood is generally long-lived (75 to 100 years) and this habitat-forming wood may become depleted if sufficient recruitment of large wood is reduced in the near future. We recommend the Final EIS address the potential for restoration of the previously harvested area at the mouth of Emerald Creek by analyzing the future supply of large woody debris.

DOI #9

The recently proposed Alternative D includes construction of 3.75 miles of road, including five stream crossings. The USFS proposes all stream crossing structures as log-stringer bridges. We believe this is preferable to culverts because adverse effects to fish passage are avoided and sedimentation risks are lessened. If a roaded alternative is chosen, the Final EIS would be strengthened by including an analysis of the effects of improved road access on the anadromous and resident fish populations in the project area, particularly for small populations of resident coastal cutthroat trout and anadromous coho salmon. However, the roaded alternative still poses greater long-term risks to fish than do either the no action or helicopter-only alternatives. If an alternative with road construction is selected, we recommend that roads be closed to motorized traffic and the log-stringer bridges be removed following logging. We recommend including in the Final EIS, an analysis of the effects of improved road access on the anadromous and resident fish populations in the project area.

DOI #10

Unit Cards - Many of the unit cards contain wording such as "A minimum of partial suspension is required." We suggest this wording be clarified as "At a minimum, partial suspension is required." FWS offers the following suggestions for further protection of fish habitat on each of the following Unit Cards:

DOI #11a

Unit 1a - The Final EIS should include a discussion of the need to implement Brown Bear riparian standards for the corridor of Emerald Creek. The riparian corridor of Emerald Creek serves not only to protect riparian habitat for resident fish and to ensure long-term preservation of water quality both on-site and downstream, but also provides connectivity for migrating Old-Growth dependent wildlife species. The Emerald Creek watershed is located at a constriction of the Cleveland Peninsula, thus the connectivity functions of the riparian zone warrant additional scrutiny.

DOI #11b

Unit 3 - Eleven acres in Unit 3 are steep forested wetlands immediately upstream of a small freshwater lake and a class 4 stream channel. This area is scheduled for partial cut helicopter yarding and has slope gradients in excess of 72 percent. We

DOI #11c cont.
next page

Forest Service Response to DOI 8

We have added these references to the Literature Cited section in Chapter 4 of the Final EIS.

Forest Service Response to DOI 9

The harvested riparian habitat just above the tidal area was qualitatively inspected in April 1998. In addition to observing over-wintering coho in some pool margins, we also observed large wood partially buried in the substrate and forming pools. The tree boles we observed were attached to their root-wads and appeared to be functional pool-forming elements. Regarding potential large woody debris recruitment sources (75 to 100 year old trees), it is important to note that the harvest that took place along Emerald Creek appears to have been selective logging conducted from an A-frame at the interface between the stream and the estuary. As such, the logging appears to have focused on spruce trees leaving most other large conifers and hardwoods in place. Restoration of this area was considered but deemed unnecessary due to the already existing structure present. (See Final EIS, Chapter 3, page 3-13).

Forest Service Response to DOI 10

Your recommendation was addressed in the Fisheries section of Chapter 3 of the Final EIS.

Forest Service Response to DOI 11a

Your recommendations have been included in the Unit Cards, Appendix 1 of the Record of Decision.

Forest Service Response to DOI 11b

See response to SEACC 9.

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recommend eliminating harvest from this portion of Unit 3 to avoid significant risks of debris slides and impacts to water bodies that are important for maintaining water quality to downstream fish habitat.

DOI #11c
cont.

Unit 9 - The area south of Unit 9 is fluvial and supports the only tall sedge fen identified on the project area. Fen habitat often supports unique or rare plants, amphibians, and insects. Given the rarity of this habitat type in the project area, we suggest considering extension of the riparian buffer to give additional protection to the fen's delicate hydrology and ensuring long-term windfirmness of the buffer surrounding the fen.

DOI #11d

Unit 10a - This unit contains hazardous soil and slope conditions, and is immediately upstream of a Class 2 stream, and clearcut helicopter harvest is prescribed. We suggest considering whether individual tree selection would lessen risks of mass movement on this sub-unit.

DOI #11e

Unit 10b - We suggest considering elimination of harvest between the confluence of the Class 2 stream and the Class 3 stream at the northwest corner of the unit because this small area is likely to be operationally difficult and probably supports critical riparian functions.

DOI #11f

Unit 11 - Please provide information on the location of the high mass-movement potential soils in this unit and information on what methods will be used to revegetate the deep, erodible soils in the west end of the unit.

DOI #11g

Unit 12 - We recommend that the log-stringer bridges installed as stream crossing structures on the class 1 Emerald Creek be removed as part of complete road closure, if a roaded alternative is chosen.

DOI #11h

SITKA BLACK-TAILED DEER AND ALEXANDER ARCHIPELAGO WOLF

Page 3-68 of the Draft EIS discusses the USFS deer model and states, "Further updates specific to this Project Area include the following: 1) 125 deer per square mile was used as the multiplier; 2) predation was included as a factor in the model; and 3) the forest suitability layer has been updated to reflect field verified suitability." We cannot evaluate these changes until FWS receives the background information they requested on February 2, 2000. We request that you provide FWS representatives with this information before their June 2000 site visit. Our preliminary comments are below. Additional comments will be provided to you in our July 2000 letter.

DOI #12a

The deer model has been controversial for many years, particularly when applied to wolf management. In the fall of 1995, the FWS, USFS, and the ADFG met to discuss the model. Based on data from ADFG, the group concurred that the model multiplier should be dropped from 125 deer per square mile to 100. The proposed changes to the multiplier likely underestimate the projected impacts resulting from the proposed timber harvest (pers. com. Matt Kirchhoff, ADFG). We suggest that the proposed changes to the model be reviewed by the ADFG's deer experts and the results be

DOI #12b cont.
next page

Forest Service Response to DOI 11c

Unit 3 has been field reviewed by a soil scientist and modified to exclude areas unsuitable for timber harvest. Four acres have been placed in a leave island. Eleven acres of slopes over 72 percent would be helicopter yarded with an individual tree selection prescription, per the soil scientist's recommendations. This would mitigate resource concerns. Downslope resources at risk include a shallow bedrock-controlled lake. Should a landslide occur, the lake will retain coarse sediments, while suspended sediments will flush downstream, with negligible effects to fish habitat.

Forest Service Response to DOI 11d

The Forest Service agrees that the tall sedge fen is important habitat and performs important hydraulic functions. Most of the fen is located south of the stream forming the south unit boundary of Unit 9. The riparian buffer includes all of the fen north of the stream. This fen will also provide additional windfirm buffering.

Forest Service Response to DOI 11e and f

Logs from Unit 10b will be yarded via helicopter, so operability of small units adjacent to larger units is not a concern. Critical riparian functions on the HC3, MC2, and HC6 channel types occur below the slope-break. Individual tree removal prescriptions should mitigate mass wasting concerns.

Forest Service Response to DOI 11g

The high MMI soils in Unit 11 are located upslope of the 1,250-foot contour interval. Most of this area is planned for helicopter yarding under all alternatives to keep soil disturbance to a minimum. If areas of mineral soil are exposed during yarding, the areas will be covered with slash and grass seeded for quick erosion control (per BMP 12.17). Natural regeneration will be monitored 3 and 5 years after harvest.

Forest Service Response to DOI 11h

All roads will be closed and bridges removed under Alternative D.

Forest Service Response to DOI 12a

The requested information has been sent.

evaluated and discussed in the Final EIS prior to selecting a final alternative. Alternatively, we recommend that the USFS use the existing Tongass Plan model until proposed changes are reviewed and approved by the ADFG experts.

DOI #12b cont.

We believe the changes in the deer model described in the Draft EIS probably underestimate the projected impacts to wolves. We recommend separate analysis of anticipated impacts to wolves in utilizing the Tongass Plan deer model until the proposed model changes are peer reviewed by ADFG deer and wolf research biologists.

DOI #12c

QUEEN CHARLOTTE GOSHAWK

In accordance with Tongass Plan Standards and Guidelines, we recommend that goshawk nesting surveys be done annually in all units included in the proposed or selected alternative, until those units are harvested. Page 3-53 of the Draft EIS indicates that goshawk surveys were only conducted in 1998, at 15 locations. We recommend surveys be conducted again during the 2000 field season to ensure that goshawk nests in particular are not over-looked prior to timber harvest and that the Final EIS be modified to reflect this increased level of monitoring.

DOI #12d

AMERICAN MARTEN

Page 3-68 of the Draft EIS discusses the USFS marten model and states: "Further updates specific to this Project Area include the following: 1) 2.71 marten per square mile was used as the multiplier, and 2) the forest suitability layer has been updated to reflect field verified suitability." We cannot evaluate how the proposed changes affect the model outputs for this proposed project without additional information. We recommend the Tongass Plan marten model be used in the Final EIS to evaluate potential impacts to marten, until the modifications to the USFS model are reviewed by the ADFG and FWS.

DOI #12e

We recommend marten surveys be completed in units where marten standards and guidelines apply before and after silvicultural treatments to determine whether these prescriptions were effective in maintaining marten habitat.

MOUNTAIN GOATS

Mountain goats are not abundant on the Cleveland Peninsula, but do exist in small groups on most of the higher mountain tops. Smith and Raedeke (1982) conducted a radio telemetry study of mountain goats on the lower peninsula and documented interchange between these small groups. During the rut, billies travel through lower elevation, often forested, habitats to access other groups of goats on adjacent mountain tops. This annual event is important to their long-term survival, allowing for genetic interchange within this small population. The proposed road may create a barrier for movements making these goats more vulnerable to harvest. We recommend that the Final EIS explicitly state the methods to employ to control public access, so that potential effectiveness of the methods can be evaluated. The Emerald Bay Draft EIS did not address mountain goat issues; we, therefore, recommend that the Final EIS discuss the potential impacts this project may have on this important species.

DOI #12f

Forest Service Response to DOI 12b and c

We used 125 deer / square mile at recommendation of interagency group of biologists (June 17, 1996 Forest Service memo titled Black-tailed Deer Habitat Model Review Meeting Notes and Model Outputs). We agree that application of the deer model has long been controversial, however, until an interagency review of the model has been completed we are directed to use the model as it presently exists (per MOU between USFS and State of Alaska Feb. 2, 2000).

Forest Service Response to DOI 12d

Goshawk nesting surveys were conducted in 1998 and 2000. No goshawks nests were found or activity noted. Forest Plan Standards and Guidelines suggest following current protocol for inventory and monitoring goshawk nest sites. Current protocol recommends focusing surveys on areas where activity has been previously documented, therefore additional surveys have not been scheduled for the project area.

Forest Service Response to DOI 12e

The model used for the Emerald Bay marten habitat analysis was the Forest Plan marten model.

The Forest Plan (page 4-118) states the objective of the Marten Standards and Guidelines is to manage high-value marten habitat in areas of timber harvest in higher-risk biogeographic provinces. It further defines high-risk biogeographic provinces as including regions where significant amounts of past timber harvest has occurred. Although the Cleveland Peninsula is included with the Revilla Island/Cleveland Biogeographic Province, it has had very little past timber harvest. Although we chose to apply the Marten Standards and Guidelines to this area, we feel that the uneven-aged prescriptions in addition to the small amount of previous activity are more than sufficient to preclude the need for effectiveness monitoring.

Forest Service Response to DOI 12f

We felt the low-impact road construction combined with the proposed road closure methods were sufficient to alleviate concern for mountain goats (Final EIS, Chapter 3, page 3-67).

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PEREGRINE FALCONS

The Draft EIS describes the American peregrine falcon as being listed as Threatened under the Endangered Species Act. We suggest the Final EIS reflect that the American peregrine falcon was delisted on August 25, 1999.

DOI #12g

CUMULATIVE IMPACTS

We note there is no mention of the Wrangell Ranger District's plans for logging in the nearby Frosty Bay and Sunny Bay areas of the Cleveland Peninsula. We recommend the Final EIS include a description of the Wrangell District's planned activities for these project areas, particularly those that abut the Emerald Bay project area. We also recommend extending the map coverage to include adjacent areas on the Wrangell Ranger District.

DOI #12h

GEOGRAPHIC INFORMATION SYSTEM

To facilitate our ability to evaluate effects of the proposed project, we request that USFS provide the FWS Juneau office, before the June 2000 site visit, with a copy of all Geographic Information System layers available for the project area, preferably on a CD-ROM. It should be noted that this information was requested by the FWS in their September 18, 1998, scoping letter.

DOI #12i

We believe the recently proposed changes in this timber sale are significant and that they warrant additional review, including the June 2000 FWS site visit to the project area, which FWS representatives will coordinate with Mike Brown of your staff. As stated above, we request the opportunity to submit additional comments to you by July 31, 2000. We believe those comments will also need to be taken into account when preparing the Final EIS.

We appreciate the opportunity to participate in planning for the Emerald Bay Timber Sale. Should the opportunity arise, FWS representatives would like to attend upcoming meetings to further discuss the issues identified above. Please contact Fish and Wildlife Service biologist Ed Grossman (907-586-7069), if you have any questions concerning these comments.

Sincerely,



Pamela Bergmann
Regional Environmental Officer - Alaska

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Forest Service Response to DOI 12g

We have removed the peregrine falcon from the list of Threatened species in the Threatened and Endangered Species section of Chapter 3 of the Final EIS.

Forest Service Response to DOI 12h

The Forest Service agrees that an adequate cumulative effects analysis should consider other projects on Cleveland Peninsula when resource impacts extend beyond project area boundaries. For the Fisheries and Water Quality Issues, proposed activities are limited to the Emerald Creek drainage and a very small part of the Wasta Creek Drainage. No other foreseeable projects on the Cleveland Peninsula will change the estimated impacts to watershed and fish resources on the Emerald Bay project area. The Fish and Watershed analysis presented in the Final EIS and resources reports is an adequate cumulative effects analysis. We have incorporated the Wrangell Ranger District plans into the Final EIS.

Forest Service Response to DOI 12i

This information has been provided.

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KETCHIKAN GATEWAY BOROUGH

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3031 Tongass Avenue
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EMERALD BAY TIMBER SALE DEIS AND SUPPLEMENTAL MATERIAL

The Ketchikan Gateway Borough (KGB) has reviewed the Draft Environmental Impact Statement (DEIS) and the supplemental material for the Emerald Bay Timber Sale Project distributed on March 20, 2000. The KGB, a second class borough and municipality organized under the laws of the State of Alaska, is located in the Tongass National Forest, is a timber-dependent community and is a recipient of timber receipt revenues pursuant to 16 U.S.C. § 500. KGB residents engage in a variety of activities within the Tongass National Forest. These include commercial timber harvesting and recreation activities such as hiking, camping, fishing, hunting and personal use timber extraction.

These comments reflect past direction of the Ketchikan Gateway Borough Assembly on timber sales. However, this particular request did not provide sufficient time to have the Assembly approve these specific remarks. Any modification the Assembly may wish to offer will be sent at a later time as an amendment to these comments.

KGB #1

The KGB supports the timber sale program on the Tongass National Forest, including the proposed timber sale project at Emerald Bay on the Cleveland Peninsula. This sale, together with other offerings in the Tongass, is important for providing timber to the forest products operators in the region, including those based within the Ketchikan Gateway Borough. With the reduction of timberlands available for harvest within the Tongass after the recent revision of the Tongass Land Management Plan, every proposed offering has become increasingly important for meeting the needs of domestic processors in Southeast Alaska. The 8 to 12 million board feet of timber that would be made available through the Emerald Bay project will help meet the demand for timber as local sawmills seek to maintain industrial employment within the Borough over the next few years.

KGB #2 cont.
next page

Forest Service Response to KGB 1

The comment period was extended by 45 days following distribution of the Project Update letter. The public comment period totaled 98 days.

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KETCHIKAN GATEWAY ECHO

FAX 907 247 8625

PAGE 3

Jeremiah Ingersoll

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May 4 2000

The study of timber demand which the McDowell Group recently completed for the KGB demonstrates that every proposed sale is now critical to maintaining the economies of scale necessary for Southeast Alaska processors to compete in the world market for wood products. If you do not have a copy of this report we would be pleased to provide one to you. As the report states:

"During the past 5 years the timber supply and demand situation in Southeast Alaska has undergone considerable change. On the supply side, the allowable sale quantity (ASQ) for the Tongass National Forest has declined significantly amid great uncertainty. Coupled with this, the economic meltdown in Asia has reduced demand for products from the Tongass National Forest. These changes, along with the closure of the two pulp mills, have adversely affected the short-term prospects for processing facilities dependent on timber from the Tongass National Forest.

"However, North American markets are strong with an outlook for continued growth. Other world markets, such as Europe and China are potential sources of demand. There are signs that Japanese demand is beginning to recover, and other Pacific Rim markets like Korea, Taiwan and Oceania have growing timber import needs.

"While it is true that the Asian economic crisis has significantly affected market demand for timber from the Pacific Northwest, Canada and Alaska, the challenge for Alaska producers, with their relatively small output, *is not so much lack of demand as changing demand. Alaska is a niche player, and a decline of established markets in Asia has brought on a need to fill new niches.*

"Producers have responded in part by establishing relationships with remanufacturing operations in the Pacific Northwest and this appears to be the most promising market as long as housing demand in the U.S. remains strong. Beyond the short term, demand is expected to renew in Japan, Korea and other Pacific Rim nations. While price sensitivity and competition are expected to persist, demand for old-growth wood should recover, though meeting that demand may require matching Scandinavia's ability to provide precision-cut, kiln-dried lumber of uniform quality.

"However, world markets are extremely competitive, and becoming more so. Niche strategies are being pursued at the national and multi-national level. For example, Norway, Finland and Sweden have developed a cooperative marketing effort to build Japanese demand for precision-cut softwoods that compete directly with Alaska products in traditional Japanese construction and other applications. Similarly, supplying components to secondary manufacturers in the Pacific Northwest is a promising strategy that nevertheless faces numerous competitors in British Columbia, Washington and Oregon. As Southeast Alaska

KGB #2 cont.

Forest Service Response to KGB 2

Section 101 of the TTRA directs the Forest Service to seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand from such forest, and (2) meets the market demand from such forest for each planning cycle, to the extent consistent with providing for the multiple use and sustained yield of all renewable forest resources and subject to applicable law. Appendix A of the Emerald Bay Final EIS provides a discussion of the overall demand for Tongass timber in Southeast Alaska and describes the market demand analysis conducted for the Forest Plan revision. Chapter 1 of the Emerald Bay Final EIS explains how this project relates to the Forest Plan.

Jeremiah Ingersoll

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May 4, 2000

moves from an industry primarily concerned with minimal processing to one that must meet the potentially more rigorous cutting and marketing requirements of niche markets, new skills – both production and marketing – are needed. *Access to a reliable supply of economically viable timber is also a critical issue for producers, particularly during this period of transition.¹*

The forest products manufacturing focus in Southeast Alaska is changing, and manufacturing facilities in the Ketchikan area are among those leading the way to a new era. The new focus features the manufacture of specialty products, including window and door frame components and veneer for the production of engineered wood products like laminated veneer lumber. Production of dried and dressed lumber and an increase in the output of cedar lumber are also under consideration. The KGB supports efforts by local manufacturers to increase local industrial employment by targeting growth markets such as these, and urges the Forest Service to consider the importance of supplying these companies with an economical supply of wood through projects such as the Emerald Bay Timber Sale.

KGB #2 cont.

As McDowell points out:

"... markets, technology and timber supply are inextricably mixed. There is no question that markets for Tongass-type products exist. But efficient – i.e., competitive – processing of the Southeast Alaska timber supply requires modern technologies and effective marketing relationships. Without a reliable timber supply, these technologies cannot be financed or, once installed, effectively used. Neither can business relationships be sustained. Further, timber sales must be composed and priced to be economically viable in today's markets. Analysis of global markets indicates that without reliable timber and ongoing investment, Tongass timber products will be significantly handicapped in the marketplace.²"

The KGB therefore urges the Forest Service to proceed with the Emerald Bay project without delay, and to ensure that the selected alternative provides the highest volume possible with positive economics.

Purpose, Need and Reasons for Scheduling

The KGB is generally supportive of the statement of purpose and need in the Emerald Bay DEIS, and generally agrees with the arguments set forth in Appendix A regarding the reasons for scheduling timber harvest in the Emerald Bay area at this time.

¹ McDowell Group, "The Global Market for Timber from the Tongass National Forest," Juneau, Alaska April, 2000, pp. 9 & 10 (Emphasis added).

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Jeremiah Ingersoll

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Maintenance of a pipeline of volume cleared through the NEPA process and a supply of volume under contract to timber purchasers is a time-honored means of sustaining a stable manufacturing and employment base in the forest products sector. The statement on page A-15 that the volume currently in the "NEPA decision pool" is a mere 126 MMBF³ is disconcerting and clearly underscores the need for the Forest Service to complete the NEPA process on this project and other pending projects as quickly as possible.

Despite the foregoing, the KGB is concerned with one project-level objective stated on page 1-4. This is objective 2, "provide an opportunity to gather information on long distance uneven-age helicopter harvesting that could be effectively used in upcoming projects." While the KGB certainly does not object to research and the use of research results to fine-tune agency planning and project management, the statement raises concerns about economic viability and the appropriateness of using timber sale projects to subsidize research if the result is an uneconomic timber sale. As pointed out earlier in this letter, industry economics are fragile at this point in history and the Forest Service should be very careful to ensure that timber sale offerings are designed to minimize harvest costs to the greatest extent consistent with other obligations. Experience with helicopter logging in Southeast Alaska over a period of several years has shown both the industry and the agency that long helicopter turns greatly diminish the economic feasibility of helicopter yarding. It appears likely that analysis of Alternate C resulted in the conclusion that yarding the proposed units with helicopters and direct delivery of wood to water landings on barges resulted in costs that were too high to make the project viable as designed in Alternative C.⁴ Thus, despite the somewhat gratuitous statement on p. 2-10 (insert 3/2000) that Alternative D would "gather information on long-distance helicopter harvesting," objective 2 is not feasible and should be eliminated from the purpose and need statement.

KGB #3

The KGB supports the selection of Alternative D as the Preferred Alternative

The addition of Alternative D to the Emerald Bay Draft Environmental Impact Statement offers a reasonable and acceptable alternative to the alternatives considered in detail in the DEIS for this project. The location and design of the road proposed by Alternative D is consistent with the information provided and considered by the Interdisciplinary Team in developing the Draft Environmental Impact statement for the Emerald Bay project. Building the first 3.75 miles of the road included in Alternative B and placing a helicopter landing at the end point of this road is a feasible

³ The same paragraph states that "the volume of timber needed to maintain the NEPA decision pool during year one is 343 MMBF." Cf. Table A-2 on p. A-9.

⁴ This conclusion is supported by the statement on p. 2-9 that "Alternative C has the highest average cost, which at \$485 per MBF is substantially higher than the other action alternative. These costs are largely related to helicopter and helicopter yarding."

Forest Service Response to KGB 3

The Purpose and Need for the Emerald Bay project has always included exploring opportunities to apply uneven-aged management and gather information on helicopter yarding, even though various policy changes (see Final EIS, Chapter 1, Purpose and Need) have occurred that have changed the focus of the Emerald Bay proposal somewhat.

We agree that the need for long-distance helicopter-yarding information is not as important as it was originally; however, public sentiment and comments to the Draft EIS continue to emphasize a lighter touch to management on the Cleveland Peninsula, something which could be addressed through application of uneven-aged management. With Alternative D, we have attempted to balance public sentiment with the need for an economically viable offering.

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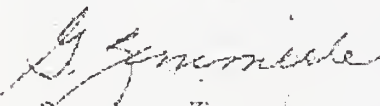
May 4, 2000

compromise between Alternatives B and C, and will likely result in an economically viable timber sale. This tends to be confirmed by the cost estimate set out on p. 2-10 (insert 3/2000), which shows the Average Harvest Cost for Alternative D as \$338, compared with \$485 for the same volume in Alternative C. The table also indicates that Alternative D provides a positive stumpage return, as opposed to a negative return under Alternative C. The KGB therefore supports the selection of Alternative D as the Preferred Alternative and urges the Forest Supervisor to select Alternative D in the Record of Decision for this project.

Furthermore, the KGB requests that Alternative D be configured to extract the maximum allowable volume from the selected units so that the total sale volume is as near to the 12 MMBF mark as possible.

KGB #4

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Emerald Bay Timber Sale project. Should you have any questions concerning these comments, please contact me at (907) 228-6625.


Georgianna Zimmerle
Borough Manager

c Mayor Shay and Assemblymembers

Forest Service Response to KGB 4

Alternative D was introduced to clarify the range of alternatives from which the deciding official could choose, particularly in light of new economic information surrounding Alternative C. The alternative required no new analysis as its impacts fall between those already considered in Alternatives B and C. Alternative D proposes to use the same uneven-aged silvicultural prescriptions as does Alternative C. Road 8645900-2 is the only road proposed in Alternative D. It is designed as a low-impact access road to shorten the helicopter-yarding distances.

Alternative D volume is approximately 11.2 MMBF.

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3:02

STATE OF ALASKA

OFFICE OF THE GOVERNOR

OFFICE OF MANAGEMENT AND BUDGET
DIVISION OF GOVERNMENTAL COORDINATION

TONY KNOWLES, GOVERNOR

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May 8, 2000

Ms. Susan Marthaller, Team Leader
U.S. Forest Service, Ketchikan Ranger District
648 Mission Street
Ketchikan, AK 99901

Dear Ms. Marthaller,

SUBJECT: EMERALD BAY TIMBER SALE DEIS
State ID No. AK 0002-0411
NEPA COMMENTS

The Division of Governmental Coordination (DGC) has completed coordinating a NEPA review for the State of Alaska, for the Emerald Bay Timber Sale. We received comments from the Department of Environmental Conservation and the Department of Fish and Game, which are attached to this letter.

As you may know, local communities have a special relationship to this area for fishing, hunting, and recreation. The heightened interest in the Cleveland Peninsula has been evident in the efforts by local citizens groups to work with the Forest Service to find alternative solutions to logging the areas of concern while still providing adequate timber to the timber industry.

The Administration remains committed to the idea that both the timber industry and Southeast Alaska communities are better served by avoiding offering federal timber sales in areas likely to face extensive opposition or litigation. Accordingly, Governor Knowles has stated on numerous occasions that the State has a strong interest in avoiding logging and road construction on the Cleveland Peninsula.

The State was encouraged by the initial FS commitment to "do it right" in this sale by non-logging direct to barge. We believe that the FS has the capability to design a sale which either

DGC #2-1
cont. next
page

Forest Service Response to DGC 2-1

Management of the Cleveland Peninsula has long been contentious. However, the Forest Plan land use designation for the Emerald Bay project area is Timber Production. All developmental LUDs are evaluated when scheduling timber sale activities and many factors are considered. The impacts of initial entries in one area must be weighed against the potential for cumulative effects of increased management in previously entered areas. The Forest Service believes that by considering low-impact roads, helicopter versus cable harvest, barge LTF, and uneven-aged management prescriptions we have far exceeded the basic standards and guidelines for managing lands in a Timber Production LUD.

Appendix B

MAY-08-40 MON 13:00

P. 03

Emerald Bay TS NEPA Comments

May 8, 2000

- 1) proceeds to be offered under Alternative C, which would acknowledge that this important area will not be roaded and logged perforce of low market conditions;
- 2) increases quantity and/or quality of the timber in the offering to increase the economic benefit to Alaskans while obviating plan to construct roads; and/or
- 3) continues to acknowledge the importance and value, in this special area, of a demonstration project as previously espoused in Alternative C.

DGC #2-1
cont.


In light of State and Community concerns, the Cleveland is one area where the FS should "go the extra mile." We encourage the FS to explore additional entries into areas which already have road systems rather than this initial entry into a small parcel in a remote location.

DGC will coordinate a review for consistency with the Alaska Coastal Management Program upon receipt of a USFS consistency determination and supporting information. In light of the sensitivity of the proposed sale, and your current change of the proposed action in the DEIS to road the area, we would appreciate the information listed in Attachment 1 of the recently signed MOU between the state and FS.

DGC #2-2

We appreciate the opportunity to participate in this NEPA review.

Sincerely,



Rexford Blazer
Project Analyst

Cc:

- ** Jack Gustafson, DFG, Ketchikan
- ** Lana Shea Flanders, DFG, Juneau
- ** Tom Paul, DFG/DWC, Juneau
- ** Kevin Hanley, DEC, Juneau
- ** Jim Eleazurs, DNR, Juneau
- ** Jennifer Gariand, DGC, Juneau

**=email transmission

Forest Service Response to DGC 2-2

We have included all of the information listed in Attachment 1 with our consistency determination.

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F. 04

Emerald Bay TS NEPA Comments

May 8, 2000

Comments Received from the Department of Environmental Conservation

The Department of Environmental Conservation has reviewed the Draft Environmental Impact Statement (DEIS) for the U.S. Forest Service's proposed Emerald Bay Timber Sale on the Cleveland Peninsula. Specifically, this project proposes to harvest between 8 and 16 MMBF of timber from 699 to 745 acres, and to construct up to 6.2 miles of road, depending on alternative. In addition, under the roaded alternatives (Alternatives B and D), a new direct land-to-barge log transfer facility (LTF) would be constructed on the south side of Emerald Bay. If either of these alternatives is implemented, then the LTF will require a separate Alaska Coastal Management Program (ACMP) consistency review, and will be subject to an ADEC Certificate of Reasonable Assurance (401 Certification).

DGC #2-3

The DEIS identified Alternative C as the Forest Service's preferred alternative for this project. This alternative proposes to selectively harvest 8 to 12 MMBF of timber from an estimated 746 acres, and to use helicopters to fly the logs directly to barges in Emerald Bay. This would involve no road construction and would not require the development of a shore-based log transfer facility. However, since the release of the DEIS, the Forest Service has determined that this alternative is not economically viable due to the long helicopter yarding distances that would be required. In order to retain the selective harvesting component of Alternative C and make it more economically efficient, the Forest Service has developed a new preferred alternative (Alternative D) which combines some of the roading elements of Alternative B with the selective helicopter harvesting of Alternative C. Specifically, Alternative D proposes to selectively harvest the same units as those proposed under Alternative C, and to construct 3.75 miles of the road proposed under Alternative B. In addition, this alternative would utilize the same direct land-to-barge LTF that is proposed under Alternative B. We offer the following comments which address ACMP, Clean Water Act (CWA) Section 319, and NEPA concerns:

NEPA & CWA SECTION 319 COMMENTS

1. Objectives of Alternative C and its Economic Efficiency

According to the DEIS (pages 1-4 and 2-7), two of the key objectives of Alternative C are to 1.) provide an opportunity to gather information on long-distance uneven-aged helicopter harvesting that could be effectively used in upcoming projects, and 2.) minimize disturbance in adjoining old-growth LUDs and minimize fragmentation of roadless areas while still meeting the goals, objectives, and desired condition for the Timber Production LUD. While these are laudable objectives which we fully support, Page 2-10 of the supplemental information to the DEIS states that "Additional field information acquired subsequent to the preparation of the DEIS showed Alternative C (the preferred alternative) to be economically unviable due to excessive helicopter

DGC #2-4 cont.
next page

Forest Service Response to DGC 2-3

When new LTFs are proposed for construction, all permits are obtained prior to implementation of the Proposed Action including permits from EPA, Dept. of the Army COE, and all State of Alaska permits and certificates.

Forest Service Response to DGC 2-4

The Purpose and Need for the Emerald Bay project has always included exploring opportunities to apply uneven-aged management and gather information on helicopter yarding, even though various policy changes (see Final EIS, Chapter 1, Purpose and Need) have occurred that have changed the focus of the Emerald Bay proposal somewhat.

Alternative D includes construction of 3.8 miles of road designed to decrease helicopter-yarding distances, thereby increasing economic efficiency. Two miles of this road cross a medium Old-growth Reserve. This road would be closed to the public during timber sale operations and put in storage upon completion of silvicultural activities. This road will impact 14 acres of the 12,439-acre medium Old-growth Reserve, only 5 acres of which are old-growth habitat. With Alternative D, we have attempted to balance resource protection with the need for an economically viable offering.

It is true that other timber sales have been considered deficit, and still deemed feasible. The Salty Timber Sale preferred alternative was appraised at -\$14.00/MBF with a total sale deficit of \$13,483.00. The Emerald Bay Alternative C was appraised at -\$122.00/MBF with a total sale deficit of \$1,460,000.00. It is economically feasible to recover \$13,000.00 given favorable market conditions, whereas it is highly unlikely that any market could sustain a \$1,460,000.00 deficit. We made every effort to increase the cost-effectiveness of Alternative C, but are unable to show a point where it begins to break even. We have refined our economic efficiency analysis. By breaking potential unit pools into subsets defined by logging costs it will be easier to display the point at which an alternative approaches economic infeasibility. This method is being used in the Final EIS.

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Emerald Bay TS NEPA Comments

May 8, 2000

yarding distances." However, it is difficult to understand how this additional information could shed any new light on this alternative, particularly since the DEIS already showed it to be positive under high market conditions and negative under current market conditions. Specifically, the DEIS (page 3-40) states "A current market analysis was looked at for comparison also. This showed Alternative B having a slightly reduced value but still positive while Alternative C would need approximately a 20 percent increase in market values to be positive using the assumption for this analysis."

DGC #2-4 cont.

In addition, it is surprising that the negative economics of this alternative are deemed impractical, especially when other deficit timber sales are considered to be acceptable. For example, the recently revised Environmental Assessment for the Salty Timber sale (page 40) states that both of the projects action alternatives are deficit under current market conditions, yet that project is proceeding forward.

According to the March 20 cover letter to the supplemental DEIS information for Alternative D, the Forest Service recognized the economic inefficiency of Alternative C and considered it worthwhile to pursue given the valuable information that it would provide: "Although the net stumpage value for Alternative C was negative, we felt it to be justifiable given what we hoped to learn from this project." However, the cover letter then dismisses the value of this information by stating that "The original need to gather cost information on long-distance helicopter yarding has been reduced by the removal of most of the Cleveland Peninsula from the Timber Production designations identified in the 1999 TLMP ROD." We are unable to determine the relevance of this statement, particularly since the information that Alternative C was intended to provide has much broader application than to just the Cleveland Peninsula. Information regarding the economic and technical feasibility of long-distance helicopter yarding would be valuable across the Tongass in analyzing timber harvest alternatives that do not involve road construction and shore-based log transfer facilities. This type of information is especially timely and relevant given the Roadless Area Initiative that is currently undergoing NEPA analysis. If the Tongass is included under this initiative, then helicopter yarding involving greater than normal flight distances will undoubtedly be required to access timber in the roadless areas of the forest. Consequently, we strongly encourage the Forest Service to select Alternative C for the Record of Decision, despite its economic inefficiency, as the information that it will provide regarding the feasibility of such a timber sale may prove to be invaluable in the near future. In addition, since this alternative does not construct any roads and does not require the development of a shore-based log transfer facility, it is the least impacting of the three action alternatives in terms of potential negative effects to water quality and fish habitat.

DGC #2-5

2 Road Location and Yarding Prescriptions for Alternative D

In order for the state to adequately review a DEIS, a stable project description must be provided, especially for the identified preferred alternative. However, it appears that the road location and yarding prescriptions for Alternative D are conceptual and may be

DGC #2-6
cont. next page

Forest Service Response to DGC 2-5

Although the need for information on long-distance helicopter-yarding costs is important, by far the greatest utility for it at the time of the Emerald Draft EIS was its application to the rest of the Cleveland Peninsula. Given the current legal environment surrounding timber harvest on Inventoried Roadless Areas, the future need for long-distance helicopter yarding is uncertain.

Additionally, more accurate information came to light when evaluating the economics of Alternative C using the new (transaction evidence) appraisal system in use by the Forest Service today. The original (mid-market) appraisal of Alternative C, although negative, was not nearly as negative as our new appraisal system shows it to be. The additional cost of obtaining less-valuable information is not warranted.

Forest Service Response to DGC 2-6

Alternative D was introduced to clarify the range of alternatives from which the deciding official could choose, particularly in light of new economic information surrounding Alternative C. The alternative required no new analysis as its impacts fall between those already considered in Alternatives B and C. Alternative D proposes to use the same uneven-aged silvicultural prescriptions as does Alternative C.

Road 8645900-2 is the only road proposed in Alternative D. It is designed as a low-impact access road to shorten the helicopter-yarding distances.

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Emerald Bay TS NEPA Comments

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subject to change. According to Page 3-16 of the supplemental information that was provided for this alternative, "Alternatives C and D propose to harvest the same units. Both alternatives have the same harvest prescriptions although there exists an opportunity to harvest the roaded portions of Alternative D using conventional systems. This option will be analyzed in detail upon final determination of road location." Consequently, rather than being a unique, stable, and predictable alternative, Alternative D appears to be a somewhat ambiguous concept that has yet to be fully thought out and analyzed. For example, will Road 8645900-2 be the only road used for this alternative, or will some of the other specified and temporary roads that are proposed under Alternative B be used as well? If so, which ones?

DGC #2-6 cont.

In addition to the conceptual nature of the roads for this alternative, the silvicultural and yarding prescriptions may also be subject to change which, along with changes to the road(s), could invalidate the effects analyses that are presented in the supplemental information for Alternative D. For example, page 3-12 of the supplement states that "The harvest methods prescribed for Alternative D will be the same as those prescribed for Alternative C and have the same direct effects on Old-growth Forest and Biodiversity." Since conventional cable yarding systems will undoubtedly require the use of even-aged management prescriptions rather than the uneven-aged prescriptions that were analyzed in the supplement to the DEIS, this conclusion may no longer be valid if the prescriptions are changed from selective harvesting to clearcutting. Therefore, if Alternative D is selected for the Record of Decision, it should be implemented consistent with the way it is presented and analyzed in the DEIS.

3. Maps

Page 2-5 of the DEIS states "Fold-out color maps of all alternatives considered in detail are provided at the end of Chapter 2." However, no such maps are included in this chapter or anywhere else in the DEIS. The only color map that is provided is the "Existing Condition and Unit Pool Map," which does not indicate the units or portions of units that are specific to each alternative. In addition, it does not include any topographic features (i.e., contour lines) or stream names, which made it very difficult to relate the minimal amount of watershed information that was presented in the DEIS to actual locations on the ground. For example, the DEIS (page 3-13) states "The Emerald Bay watershed was divided into four sub-basins for sediment risk analysis. The most sensitive resident salmonid habitat in the watershed is located in sub-basin S01 (upper Birch Creek) where four Class III tributaries join an unstable palustrine complex at the upper mainstem floodplain. Harvest surrounding this area was deferred." However, no map showing this sub-basin or any others was included in the DEIS, and no indication was provided regarding the location of Birch Creek, Emerald Creek, or the Wasta Creek sub-basin which is also discussed in the DEIS. The only information regarding the location of Emerald Creek is in the Fisheries/Hydrology section of the unit card for

DGC #2-7 cont.
next page

Forest Service Response to DGC 2-7

The Final EIS includes alternative maps. The information required in Attachment 1 of the MOU will also fulfill this request.

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Alternative B, Unit 1 which states "The northern boundary of Units 1a and 1b are adjacent to the stream buffer on Emerald Creek." However, these units are actually located adjacent to Birch Creek, which added to the confusion. We were able to confirm the location of Birch Creek only after reviewing the supplemental road cards for Alternative D, more specifically, the Site Specific Design Criteria narrative for Road number 8645900-2, which states "In Alternative B, the road includes a crossing on Birch Creek, a Class 2 fish stream ... The road proposed in Alternative D does not cross Birch Creek."

DGC #2-7
cont.

Consequently, to avoid the confusion that resulted from the lack of information that was presented on the maps for the DEIS, the FEIS should include alternative maps displaying the units and roads specific to each alternative, contour lines at least as detailed as 500-foot intervals, and the locations and names of the major streams and watersheds within the project area. This basic level of information is included in the information items that the Forest Service agreed to provide per the recently signed Memorandum of Understanding on Coastal Zone Management Act/Alaska Coastal Management Program consistency reviews.

4. Potential Harvesting on Mass Movement Index (MMI) 4 Soils:

According to the unit card maps for Units 10a and 10b, the vast majority of these units occur on MMI4 soils. This may simply be a mapping artifact; however, if it is not, then it is inconsistent with the Forest Plan, as the Plan prohibits harvesting on such soils, and has designated them as unsuitable lands (TLMP, Appendix A).

DGC #2-8

Comments Received from the Department of Fish and Game

Site Visit:

ADF&G has a field inspection scheduled at Emerald Bay in early June, accessing the area aboard the MV Curlew. Road construction on the Cleveland is a serious concern and requires a field visit to better determine site specific impacts to resources in the area. We would like to defer our review of this project until after such a visit has been completed.

DGC #2-9

Salvage Economics:

ADF&G requests information regarding the actual costs of all the various components of the roading option(s). Apparently, from the new information provided, the actual roading costs in the new preferred Alt. D will be only \$570,000 for 3.75 miles of road construction. Is this correct? We would like to review a more specific breakdown of how total harvest costs were computed in the various alternatives as this aspect of the sale remains vague. What are the costs for LTF construction and the rehabilitation/closure of

DGC #2-10
cont. next
page

Forest Service Response to DGC 2-8

Unit cards in the Draft EIS indicate Unit 10 lies on very high MMI soils. A July 11, 2000 field review revealed that most of the very high MMI soils lie upslope of the unit. Small areas of slopes over 72 percent totaling about 1 acre (in Units 10b and 10c) were identified. These areas were also identified as having a very high landslide potential. In Unit 10b, an area about 3/4 acre in size was deleted from the unit. In Unit 10c, two small areas of very high landslide potential were identified, however, neither area supported merchantable timber, and the areas are small enough to leave in the unit given the selection harvest prescription and helicopter logging. With these modifications, Unit 10 meets the Forest-wide Standards for slope stability.

Forest Service Response to DGC 2-9

Your comments, both previous to and following your June site visit have been used in the preparation of the Final EIS.

Forest Service Response to DGC 2-10

The total cost of the specified road in Alternative D displayed in the Emerald Bay project updated of March 20, 2000 considered a total road cost of \$570,000 for the 3.8 miles of road. Road building within the project area is not difficult and the cost is below average. A breakdown of costs is displayed in the Transportation section of the Final EIS, Chapter 3, page 3-56.

The economic analysis for Alternative C in the Draft EIS showed that this alternative was deficit under all market conditions - even more so when re-evaluated in terms of our new Transaction Evidence appraisal system. This was a major contributor to our decision to adopt Alternative D.

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Emerald Bay TS NEPA Comments

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roads? Additionally, how much would these costs be increased if we sought to naturally remove the road fill and the structural embankment fill in the intertidal and marine habitat upon completion of the project?

DGC #2-10
cont.

We have a concern that the economic efficiency of Alt. C is based on "current market conditions", which are low. As market conditions are highly variable, how much would market conditions have to change to make the economic efficiency of Alt. C even marginally acceptable to the FS?

Road Concerns:

There are not permanently protected lands on the Cleveland Peninsula, and we have significant concerns regarding the establishment of the first Forest Service roadhead on the peninsula. As land management designations could be so easily changed in the foreseeable future, the continued long-term existence of harvestable surpluses of certain wildlife species, effects to subsistence and viability remain in question when the option for a potentially interconnected road system still exists.

DGC #2-11

The newly proposed road will be constructed through a designated Medium Old Growth Reserve. This is a poor precedent to set so early on in the implementation of TLMP, especially with a sale ADF&G was told was being designed for helicopter only yarding and that would avoid a road through the OGR.

DGC #2-12

Wildlife Concerns:

The isthmus area between Emerald Bay and Spacious Bay is the narrowest point of the Cleveland Peninsula. Logging, along with other possible future transportation and land settlement developments in this area will fragment this "pinch-point", causing increased visibility concerns regarding certain species on the lower Cleveland Peninsula.

DGC #2-13

Log Transfer Facility Location:

The LTF is completely conceptual in both location and design. The new preferred alternative is dependent upon the erroneous assumption that there will not be conflicts with this LTF. In the original project proposal, ADF&G assumed there would be no fill in intertidal and marine habitats. What work has been accomplished regarding the economic and environmental analysis of the LTF site? The site is adjacent to Emerald Bay estuary and closer than 330 feet to a bald eagle nest. This would not be evaluated by ADF&G in detail, however, until we received the formal COE public notice and did a field inspection based upon the information contained within the notice.

DGC #2-14

Forest Service Response to DGC 2-11

The only permanent protections are Congressional designations (Wilderness, Wild and Scenic Rivers, and LUD II) or administrative decrees (National Monuments). In theory, Congress could even change these designations. Even as this is written the 1999 Forest Plan Record of Decision has been vacated, returning a portion of the lower Cleveland Peninsula to developmental LUDs. We will continue to work toward balancing resource protection concerns with Land Use Designation goals as dictated by the Forest Plan.

Forest Service Response to DGC 2-12

Although the Proposed Action did not call for road construction through the medium Old-growth Reserve, Alternative B did. NEPA requires that a full range of alternatives be analyzed, and Alternative D provides the opportunity to look at a lower-impact road than is typically proposed (as in Alternative B). Forest Plan Standards and Guidelines allow for road construction through Old-growth Habitat Reserves if other alternatives are not feasible. The isolated nature of the Emerald Bay project area precludes any other means of road access. The revised financial efficiency analysis of the helicopter-only alternative shows it to be economically unfeasible under any market condition. Alternative D proposes construction of 3.8 miles of road, 2.2 miles of which would cross a medium Old-growth Reserve. This road would be closed to the public during timber sale operations and put in storage upon completion of silvicultural activities. This road will impact 14 acres of the 12,439-acre medium Old-growth Reserve, only 5 acres of which are old-growth habitat.

Forest Service Response to DGC 2-13

The Old-growth Forest Habitat conservation strategy, and standards and guidelines in the Forest Plan recognized "pinch points" and other features that might affect the biogeography of the Tongass. The Cleveland Peninsula is approximately 5 miles across between Emerald Bay and Spacious Bay. The portion of the project area that is available for timber harvest is approximately 0.75 miles wide at this point, leaving 4.25 miles in Old-growth Habitat Reserves and other non-development Land Use Designations.

Alternative D includes construction of 3.8 miles of road, 2.2 miles of which cross a medium Old-growth Reserve. This road would be closed to the public during timber sale operations and put in storage upon completion of silvicultural activities. This road will impact 14 acres of the 12,439-acre medium Old-growth Reserve, only 5 acres of which are old-growth habitat. The disturbance of 5 acres of productive old growth (14 total acres) is unlikely to have a significant impact on the ability of the Old-growth Habitat Reserve system on Cleveland Peninsula to meet the objectives outlined in the Forest Plan. (See Biodiversity section of Chapter 3 of the Final EIS).

MAY-08-00 MON 18:03

P. 39

Emerald Bay TS NEPA Comments

May 8, 2000

DEIS Process:

The FS planning process for this sale has been flawed. This could be partly due to the high rate of change of FS personnel involved in the project from its conception to the present time, perhaps resulting in a lack of consistency in the development of the project. In the beginning, and up until the present time, we were led to believe the project would be helicopter only operation and got behind the momentum of this original objective. Had ADF&G known it could evolve into the current proposal, we would have handled our early involvement and compromises differently.

DGC #2-15

ADF&G would still support the original concept of a roadless helicopter-only sale for the area, and believe the issues listed above could all be resolved by going back to the original intent for the sale. Although, present market conditions are poor, it is typical to delay sales, sometimes for many years, until market conditions improve. We encourage the FS to implement the final design for the project as a helicopter sale, but not plan on releasing the sale until the market conditions improve.

Forest Service Response to DGC 2-14

Initial reconnaissance of potential LTF sites was done in 1982 in accordance with the Alaska Timber Task Force Siting Guidelines for LTFs. Additional reconnaissance was done in 1998 and 1999 to ensure that the potential sites met the ATTF Siting Guidelines. An underwater survey of the marine habitat at the potential sites was completed during the summer of 2000. With this information, the design of the land-to-barge log transfer facility will be completed for permit application.

Forest Service Response to DGC 2-15

The Forest Service disagrees. Alternative D was developed particularly in light of the reanalysis of the helicopter-yarding costs. The alternatives, including the proposed action, are the heart of the EIS (40 CFR 1502.15). The intent is to present the environmental impacts in a comparative form to sharply define the issues and provide a clear basis for choice. The effects of Alternative D fall between those already considered in Alternatives B and C. The new information was necessary for planning participants to make informed comments and therefore introduced during the comment period for the Draft EIS. We also extended the comment period to allow the full 45 days following the mailing of the new information.

Here are my comments for the Emerald Bay EIS:

Due by May 5, 2000

Please complete the other side before sending in your comments

If you have no comments at this time but wish to remain on the Emerald Bay mailing list, please return this form with the other side filled out. If your mailing label is correct, you may cut it out and tape it here.

Name: Kent W. Nelson

Organization: (official representation only)

Gateway Forest Products

Address: P.O. Box 774

City, State, Zip: Ward Co., AK. 99288

The Emerald Bay Project is very important to the timber industry. Apparently the sale will be nearly 15 million, this is nearly 10% of the volume the USFS is planning to sell.

There is an unlimited demand for forest products, and Tongass timber fills a portion of that demand. However, if sales are not economical, like the sales of 1998 - they will not be purchased. For helicopter logging, the distance the helicopter flies is critical to the cost of harvest. Therefore, without a road system Emerald Bay is likely to remain a timber sale on paper only.

GFP #1

Kent W. Nelson

DIRECTOR OF TIMBER MANAGEMENT

Please complete the other side, and mail to:

District Ranger, Ketchikan - Misty Fjords Ranger District, Tongass National Forest,

Attn: Emerald Bay EIS, 2031 Tongass Avenue, Ketchikan, AK 99901

Telephone: (907) 225-2168

FAX: (907) 225-8738

E-Mail: alex@10.ketchikan.ak.fs.fed.us

Forest Service Response to GFP 1

Economics play an important role in selling timber on the Tongass National Forest. The Final EIS (Chapter 3, Socioeconomics section) displays by alternative the economic effects of long-distance helicopter yarding, conventional yarding and helicopter yarding at moderate distances.

Alaska Forest Association, Inc.



111 STEDMAN STREET, SUITE 200
KETCHIKAN, ALASKA 99821-5550
Phone: 907-225-6714
FAX: 907-225-5920
Web Site: www.akforest.org

May 5, 2000

Jeremiah Ingersoll
Ketchikan District Ranger
Tongass National Forest
3031 Tongass Avenue
Ketchikan, AK 99901

RECEIVED

MAY 08 2000

Ketchikan-Misty Fjords
Ranger District

RECEIVED

Ketchikan-Misty Fjords
Ranger District

RE: Emerald Bay Timber Sale DEIS

Dear Jerry:

The Alaska Forest Association (AFA) has reviewed the Draft Environmental Impact Statement for the Emerald Bay Timber Sale project, Ketchikan Ranger District, Tongass National Forest. This letter is AFA's response and comments regarding the Emerald Bay project. AFA represents approximately 90 regular and 160 associate member companies doing business in the forest products industry throughout Alaska. AFA, its members, their employees and the timber dependent communities of Southeast Alaska, depend on the Forest Service to provide economic timber sales of sufficient volume to meet the needs of the Southeast Alaska timber industry.

Purpose and need

In addition to the 7 statements supporting the purpose and need analysis under the Revised Tongass Land Management Plan listed on p. 1-4 of the Emerald Bay Draft EIS, AFA believes the purpose and need statement for this project should reflect the following points:

- the project will move timber stands to a managed condition resulting in healthier, faster growing stands;
- the project will increase growth and yield from the managed stands;
- the project will help meet the direction in the Tongass Timber Reform Act, Section 101, to "seek to provide a supply of timber from the Tongass National Forest which (1) meets the annual market demand for timber from such forest and (2) meets market demand from such forest for each planning cycle" to the maximum extent consistent with multiple use and sustained yield from all renewable forest resources;
- the project will help meet the raw material needs of the existing forest products manufacturing facilities in Southeast Alaska by providing a volume of timber under contract;
- camping, deer hunting and other recreation opportunities within the Emerald Bay Timber Sale project area are compatible with timber harvests and fit within the range of activities provided for under the multiple-use mandates of the Forest Service mission, the National Forest Management Act and the Multiple Use and Sustained Yield Act.

AFA #1

Forest Service Response to AFA 1

The Purpose and Need for the Emerald Bay project was designed to meet the objectives of the Timber Production LUD designation as defined in the Forest Plan, page 3-144. The additional items you suggest are incorporated into that Purpose and Need with the exception of increased recreational access. State agency and public concerns regarding the protection of wildlife on the Cleveland Peninsula centered around limiting access.

The remaining available Commercial Forest Land in the Tongass National Forest, after implementation of the recently revised Tongass Land Management Plan, must be carefully and intensively managed for timber production if the Forest Service is to be able to provide a supply of timber even approaching the Allowable Sale Quantity set forth in the revised Plan over the long term. The Forest Service should provide the maximum environmentally feasible and economically available volume from the Emerald Bay Timber Sale project. Making volume available on the Cleveland Peninsula will help sustain the existing industry and foster an economic climate in which continuing investments can be made to stabilize the forest products manufacturing infrastructure in Southeast Alaska.

AFA #2

Additionally, the following information should be noted and incorporated into Appendix A of the FEIS for the Emerald Bay Timber Sale project:

- The Forest Service should consider the potential for an evolving and expanding timber industry when calculating timber demand from the Tongass. For example, Gateway Forest Products' new veneer facility which is presently under construction at Ward Cove will provide a new local market for some of the lower grade hemlock. This affects the dynamics of the timber sale competition in Southeast Alaska and should have some appreciable impact on demand;
- In the 1997 demand analysis update, Brooks and Haynes gave three scenarios varying from a low of 133 mmbf to a high of 156 mmbf. The installed normal operating capacity of sawmills served by the Tongass National Forest was determined to be 355.5 mmbf in 1998-99, and the manufacturing facilities have been operating at less than 50% of normal operating capacity. While installed capacity is presently in transition, adjustments may be hindered significantly if the mills are constrained by a program which is limited by the Brooks and Haynes estimates. This will frustrate the efforts of Southeast Alaska's forest products manufacturers to respond to changing market opportunities;
- The Forest Service should consider new information on market demand made available in a recent study conducted by the McDowell Group of Juneau, Alaska, under contract to the Ketchikan Gateway Borough. This study, "The Global Market for Timber from the Tongass National Forest," provides a more recent and comprehensive analysis of market demand for Tongass-type timber than the Brooks and Haynes study relied upon by the agency in drafting the Revised Forest Plan and in preparing Appendix A of the Draft EIS for the Emerald Bay Timber Sale project. To comply with provisions of NEPA, the Forest Service should ensure that an examination of this new information is incorporated into its preparation of timber sales, such as the Emerald Bay project, so that such projects conform to the obligations set forth in Section 101 of TTRA noted above.

AFA #3

Visual impacts

Visual impacts of the proposed harvest at Emerald Bay from water routes on the northerly side of the Cleveland Peninsula should prove to be minimal under any of the action alternatives in the DEIS. Measures provided in the Forest Plan for addressing VQOs for harvest in the Timber Production LUDs are more than adequate to satisfy any visual concerns related to this project.

AFA #4

Forest Service Response to AFA 2

The Forest Service must carefully manage its timber resource if it expects to provide a supply of timber to industry. It is not always possible to develop a project with the maximum environmentally feasible and economically available volume concurrently. Ranges of alternatives are developed which display trade-offs and explore options that would achieve the Purpose and Need. It is not possible to develop an alternative for every contingency, but those which were developed provide clear and reasoned trade-offs to contrast and weigh against one another and from which to interpolate or extrapolate various options. The intrinsic value placed by many on the roadless nature of the Cleveland Peninsula played an important role in the development of this range of alternatives.

Forest Service Response to AFA 3

Appendix A of the Emerald Bay Final EIS provides a discussion of the overall demand for Tongass timber in Southeast Alaska and describes the market demand analysis conducted for the Forest Plan revision. Chapter 1 of the Emerald Bay Final EIS explains how this project relates to the Forest Plan. Appendix A is a Forest-wide tool and which is incorporated in all timber sale environmental documents on the Tongass. It is not usually changed on a project basis. Your comments have been conveyed to the Forest Timber Staff.

Forest Service Response to AFA 4

Alternatives C and D exceed minimum Visual Quality Standards and Guidelines.

Economic considerations

The Forest Service has clearly made an attempt to perform an economic analysis of the proposed action in the Emerald Bay project area, as evidenced by the recent addition of Alternative D. This is both appropriate and commendable. AFA does have some outstanding concerns about economics, however, and it asks that the Forest Service address these in the FEIS by incorporating the following suggestions into the selected alternative:

- ▶ In units that are designated for helicopter harvest, turn distances must be kept to a minimum and turn distances for all proposed helicopter units should be clearly set forth in the NEPA documentation.
- ▶ The addition of a road into the project area from the coast will dramatically improve sale economics in this project. However, since that road will penetrate two harvest units and provide landings within those units, the alternative should be modified to provide for cable logging of all or part of these units (1 and 12). See further comments on specific units, below.
- ▶ The Forest Service should utilize a clearcut prescription (including clearcuts with reserves as necessary to meet TLMP standards and guides) in some of the Emerald Bay units (see specific comments below). Reducing the use of the individual tree selection method will increase the volume per acre and the volume per mile of road and thereby greatly improve harvest economics.
- ▶ As proposed in Alternative D, the entire Emerald Bay project volume should be sold in a single sale to minimize mobilization costs and contribute to overall sale economics.

AFA #5

Old Growth Reserves

AFA notes with pleasure that no adjustments to Old Growth Reserves are anticipated in connection with this project except those associated with the construction of a road through the medium OGR, i.e., the removal of approximately 5 acres of POG out of the present total of 3,913 acres of POG. The effect of this road construction on the functioning of the OGR will be negligible, especially in light of the agency's intention of a low impact design and of putting the road "to bed" after project completion.

AFA #6

AFA supports Alternative D with modifications as the Preferred Alternative

In a perfect world, the timber industry would prefer Alternative B among the alternatives set forth in the Emerald Bay DEIS. This alternative produces the most volume and has the lowest projected harvest costs. This is the best of both worlds. The AFA recognizes, however, that other constraints are likely to prevent the agency from choosing this alternative. Therefore, the AFA supports the selection of Alternative D with some modifications. Specifically, the Association suggests that some units (identified below) be harvested using the clearcut method (including clearcuts with reserves) and that parts of two units be harvested using conventional cable systems. Both these modifications will improve the economics of this project and will help the agency maximize the volume made available by this sale. The latter is important if the agency hopes to meet its harvest goals over the life of the plan.

AFA #7 cont.
next page

Forest Service Response to AFA 5

The range of alternatives that is displayed for the Emerald Bay project was developed in response to the issues. Economics and wildlife concerns surfaced as two critical and to some, often-conflicting points of view. (Alternative D was developed as a compromise to accommodate this situation. The objective of Alternative D is to 1) improve the overall economics while 2) maintaining an array of size classes of trees to better provide for wildlife needs.) We agree that many of your suggestions, such as reducing helicopter turn distances, providing an option for partially cable harvesting Units 1 and 12, and including some even-aged harvest would improve the economics. The low-impact road proposed in Alternative D is intended to reduce helicopter-yarding distances. Although the prescriptions in Alternative D remain uneven aged, the decision maker has the latitude to mix features from any of the action alternatives.

Forest Service Response to AFA 6

The discussion of OGR and POG has been expanded in the Final EIS to better support the conclusion that effects will be negligible.

Specific unit comments

- | | |
|---------|---|
| Unit 1 | The portion of this unit identified on page B-3 as 1a should be harvested using a cable logging system to the extent feasible (perhaps just the portion closest to the road, as identified in Alternative B). Individual tree selection would be acceptable for this portion of Unit 1. The portion of Unit 1 identified on page B-4 as 1b should be clearcut using a cable logging system to the maximum extent feasible. The proposed landing at mile 3.75 of the proposed road should be sited to accommodate this method. |
| Unit 2 | All of Unit 2 (a, b, and c) should be helicopter yarded to the proposed landing at mile 3.75. Individual tree selection is acceptable for this unit. |
| Unit 3 | All of Unit 3 should be logged using helicopter logging methods, and yarding should be to the landing at mile 3.75. Harvest prescriptions should be as set forth in Alternative B. |
| Unit 5 | 23 acres in this unit should be clearcut as in Alternative B and yarded by helicopter to mile 3.75. Minimal harvest such as proposed under Alternative C would likely be uneconomic given the distance of this unit to the landing. |
| Unit 6 | A 10 acre clearcut, yarded by helicopter to mile 3.75 should be prescribed for this unit as set forth in Alternative B. |
| Unit 9 | 39 acres should be harvested from this unit in clearcuts with reserves, as set forth in Alternative B, except the harvest system would be with helicopter, yarded to mile 3.75. |
| Unit 10 | This unit should be harvested as in Alternative B, with the helicopter landing sited at mile 3.75. Unit 10a would be clearcut, and 10b would be individual tree selection. |
| Unit 11 | The western portion of this unit should be harvested according to the prescriptions set out in Alternative B, except yarding would be by helicopter to mile 3.75. Consider dropping the eastern portion of the unit to improve overall sale economics. |
| Unit 12 | This unit should be harvested as provided in Alternative B, with a combination of individual tree selection and clearcuts as to harvest prescriptions and a combination of cable and helicopter yarding as to harvest methods. However, dropping the southeastern portion (or part of it) should be considered in light of the fact that the southeastern spur will not be built. This decision should be made based on whether yarding that portion of the unit would contribute to or detract from overall sale economics. |
| Unit 13 | This unit should be analyzed in the same manner as suggested above for the southeastern portion of Unit 12. If building a landing near the point where the road |

AFA #7
cont.

Forest Service Response to AFA 7

Your unit-specific comments are noted and appreciated. These suggestions relate to maximizing the economics in Alternative D by applying even-aged silvicultural prescriptions and/or cable logging to all or portions of the harvest units (1, 2, 3, 5, 6, 9, 10, 11 and 13). The IDT elected not to mix prescriptions in the range of action alternatives presented in the Final EIS in order to meet original project objectives to the extent that sale economics would remain positive. An alternative that would do what you suggest was considered in the Final EIS, but eliminated from detailed study (see Final EIS, Chapter 2).

first penetrates the unit allows economic harvest of this unit and the southeastern portion of Unit 12, the units should be retained and harvested according to the prescriptions set forth in Alternative C (except the location of the landing).

AFA #7 cont.

Miscellaneous comments

1. The additional comment period provided after the supplement for this project (adding Alternative D) was released was not adequate for examination of the new material. An additional week would have been most helpful.
2. The page numbering scheme for the supplement was less than helpful. Particularly, the numbering (or lack thereof) in Chapter 2 made it difficult to make reference to specific pages and therefore such references are omitted in these comments.
3. On the other hand, Table 2-2 (and Table 2-2a in the supplement) contained useful harvest economics information that has been less clearly set forth in the NEPA documentation for other recent projects in the Tongass National Forest.
4. AFA notes that cumulative effects of OGR modifications were not displayed in this DEIS as was agreed to by the agency in the settlement of AFA's appeal of the Crystal Creek project in 1999. Even though there were no OGR modifications proposed in the Emerald Bay DEIS, it would have been useful to have this information provided in that document, and the Association requests that such information be provided in the FEIS for this project.
5. The proposed log transfer facility under Alternative D is a land-to-barge facility. This is acceptable to the industry in this instance as it is likely the most cost-effective solution given the lack of other planned projects in the area and other, related, considerations.

AFA #8

AFA #9

AFA appreciates the opportunity to participate in the planning of the Emerald Bay project. Should you have any questions concerning these comments, please contact me at (907) 225-6114.

Sincerely,



Jack Phelps
Executive Director

Forest Service Response to AFA 8

We allowed 45 days after the release of Alternative D for comments. In total, 98 days were allowed for comment on the Draft EIS. We appreciate your editorial comments and have incorporated them into the Final EIS. We will continue in our attempts to make the information provided helpful.

Forest Service Response to AFA 9

Cumulative effects of OGR modifications are generally addressed when one is changed through a non-significant amendment to the Forest Plan. The most recent of these occurred in the Polk Small Sales and Salvage EA (September 14, 2000). The net change in suitable acres displayed in that analysis is -2,638.

PACIFIC LOG & LUMBER, Ltd
P.O. BOX 5183
KETCHIKAN, ALASKA 99901

Phone (907) 247-6731
Fax (907) 225-5990

Jermiah C. Ingersoll
U.S.D.A. Forest Service
Ketchikan-Misty Fjords Ranger District
3031 Tongass Avenue
Ketchikan, AK 99901

RE: Emerald Bay Project

Dear Mr. Ingersoll:

This letter is to address specific alternatives as outlined in the draft environmental impact statement for the Emerald Bay Project. As I am sure that you are aware, the timber industry in S.E. Alaska has gone through substantial reductions in timber being offered for sale during the past decade. Not only has the volume been greatly reduced, the economic viability of many of the timber sales has been pushed to bare minimums and beyond. If a timber sale is not economically feasible to purchase and harvest, it effectively reduces the volume of timber available to the industry even more. While Washington D.C. officials seem well bent on saving everything in the Tongass except the people who live and work here, I would like see you and your staff taking a more reasonable approach and work diligently to offer timber sales that may actually be harvested.

Given the information made available in the DEIS, the only reasonable alternatives are (B) and (D). Selecting alternatives (A) or (C), at this point, would be a tremendous waste of taxpayers' money attributed to this project. In my opinion, alternative (B), if adopted, has the highest percentage chance of perpetuating good paying jobs within the timber industry here in Alaska. Alternative (D) will encourage more helicopter contractors from outside the state of Alaska to view the industry here as a viable place for them to do business. On a scale of 1 to 10, alternative (B) scores a 10, alternative (D) scores an 8, alternative (A) scores a zero, and alternative (C) scores a 2.

PLL #1

In closing, I wish upon you the wisdom and the courage to make the right decision and not just the politically comfortable decision regarding the Emerald Bay Project.

Thank you for the opportunity to comment on this project.

Sincerely,



Frank D. Age,
Vice President

100 J

907 225 5990

PACIFIC LOG & LUMBER 11:11 (12/01/91) 13:11 FAX (907) 225-5990

Forest Service Response to PLL 1

We appreciate your comments and ranking of the range of alternatives. We attempted to balance wildlife, social and economic concerns in their development and presentation.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

MAY 16 2000

Reply To
Attn Of: ECO-088

Ref: 98-040-AFS

Susan Marthaller
Attn: Emerald Bay
3031 Tongass Avenue
Ketchikan, AK 99901

Dear Ms. Marthaller:

In accordance with our responsibilities under the National Environmental Policy Act and §309 of the Clean Air Act, we have reviewed the draft Environmental Impact Statement (EIS) for the proposed **Emerald Bay Timber Sale**. The project attempts to achieve Forest-wide goals and objectives of managing timber lands for the long-term sustainable yield of wood and to provide sufficient timber to meet the annual market demand for the Tongass National Forest. The project also attempts to create opportunities to use available natural resources and to employ local people by doing so. Project objectives include experimenting with uneven-aged helicopter harvest activities to minimize the building of roads, minimize disturbance in adjoining old-growth areas, and provide local employment opportunities in the wood products industry. The draft EIS identified Alternative C as the preferred alternative. Subsequent to the issuance of the draft EIS, the Tongass National Forest issued supplemental information that identified Alternative C as economically unviable due to excessive helicopter yarding and introduced a new alternative, Alternative D, as the preferred alternative. Alternative D differs from Alternative C in that it entails building roads and a Log Transfer Facility (LTF).

Based on our review, we have rated the draft EIS, EC-2 (Environmental Concerns - Insufficient Information). This rating and a summary of our comments will be published in the *Federal Register*. The contents of this letter focus on

- the lack of detail in the Environment and Effects chapter of the EIS,
- the appearance that alternatives were not completely developed, analyzed, or described in the EIS, and
- the limited range of alternatives in the document.

A summary of the rating system used in conducting our review is enclosed for your reference.

Focus Discussion in the Environment and Effects Chapter on the Project and the Project Area

We are concerned about the lack of specific information pertinent to the project and the project area in the Environment and Effects chapter. We recommend that the Forest Service supplement the existing general discussions of legal requirements and descriptions of the regional environment as a whole with more specific information which illustrates the unique characteristics of the project and its effect on the project area. An example of the general nature

EPA #1 cont.
next page



Forest Service Response to EPA 1

Your comments are noted and incorporated.

of the EIS is reflected in the discussion of commitments of irreversible and irretrievable resources (40 CFR 1502.16). The EIS defines what irreversible and irretrievable resources are at the beginning of the document but leaves the actual identification of these resources to the reader of the EIS. The EIS should use analyses to identify the specific irreversible and irretrievable resources that would be committed with adoption of each action alternative. The EIS should also exclude unnecessary general information, such as the discussions of A-frame and low angle ramp LTFs that are not components of any alternative. Instead, we recommend that the EIS emphasize the portions of the document that are useful to decisionmakers and the public and reduce the emphasis on background material (40 CFR 1500.4(f)).

EPA #1 cont.

Finish Developing Alternatives and Analyzing and Describing Effects of Adopting Alternatives

We recommend that the EIS finish developing alternatives and describe their effects in greater detail to better inform the public and decisionmakers. Broad statements in the EIS like “the Forest Service is in the process of comparing the benefits and adverse effects of each alternative against the issues,” or more specific ones like “the potential long-term effects of the new road construction in Alternatives B and D would be reduced through implementation of an access management plan for the Project Area” suggest that alternative development and analysis remains incomplete at the draft EIS stage and that currently there is insufficient information for readers and decisionmakers to understand alternatives and the effects of implementing them.

EPA #2

Specifically, we recommend that the EIS describe the access management plan and the economic analysis in greater detail. The EIS should identify the specific locations of roads proposed to be built in Alternatives B and D in the final EIS. We believe that understanding the location of the road alignment is necessary to accurately predict impacts associated with the road (e.g., changes in hydrologic flow, fragmentation of wildlife habitat, potential sediment sources) as well as expenses associated with each alternative since road construction costs will vary depending on the alignment and the cost of harvesting will depend on the distance needed to transport the logs to the road via helicopter.

EPA #3

We also recommend that the EIS be revised to more fully describe the analyses and rationale used to conclude that Alternative C is economically unviable due to excessive helicopter yarding distances and that the total cost (accrued by both the contractors as well as the Forest Service) of adopting Alternative D is significantly less than that associated with Alternative C. Another area of concern is the significant difference in the results of the analyses performed before and after issuance of the draft EIS. The net negative value for stumpage associated with Alternative C is 30 times greater in the supplemental information than that stated in the draft EIS. The draft EIS bases the \$-4/mbf value associated with Alternative C on high-market prices, however, the supplemental information does not state the basis for the \$-122/mbf value also associated with Alternative C. The EIS should specify whether that figure is based on high-market prices, low-market prices, or prices that lay somewhere in-between and explain any other factors that contribute to the disparity existing between the predicted costs of harvest in the draft EIS and those found in the supplemental information.

EPA #4 cont.
next page

The EIS should define terms such as total harvest cost, average economic cost, net stumpage value, total stumpage value, and employment. For example, with total harvest cost, the lack of a definition raises questions about whether this term encompasses the cost to harvest

Forest Service Response to EPA 2

We have expanded our effects analysis and eliminated broad statements in the Final EIS.

Forest Service Response to EPA 3

The Final EIS displays field-verified road locations for the roading proposed in both Alternatives B and D (see Fish and Water Section of Chapter 3 of the Final EIS)

Forest Service Response to EPA 4

It is true that other timber sales have been considered deficit, and still deemed feasible. The Salty Timber Sale Preferred Alternative was appraised at -\$14.00/MBF with a total sale deficit of \$13,483.00. The Emerald Bay Alternative C was appraised at -\$122.00/MBF with a total sale deficit of \$1,460,000.00. It is economically feasible to recover \$13,000.00 given favorable market conditions, whereas it is highly unlikely that any market could sustain a \$1,460,000.00 deficit. We made every effort to increase the cost-effectiveness of Alternative C, but are unable to show a point where it begins to break even. We have refined our economic efficiency analysis. By breaking potential unit pools into subsets defined by logging costs it will be easier to display the point at which an alternative approaches economic infeasibility. This method is being used in the Final EIS.

Thank you for your comment. The Final EIS now reflects many of your concerns regarding definitions and costs associated with transportation and construction.

contractors only or whether it also includes the cost to the Forest Service. It would appear that the cost of building logging roads and a LTF as part of Alternative D would potentially exceed the savings that would result from reducing the helicopter use reflected in Alternative C. The economic discussion in the EIS should be expanded to include a more detailed discussion of why the cost projections differed so markedly between the draft EIS and the supplemental information and a comprehensive comparison of total costs associated with the alternatives (borne both by the Forest Service as well as the contractors).

EPA #4
cont.

Viability Versus a Range of Reasonable Alternatives

We are concerned that the EIS appears to present only one viable alternative, Alternative D. Alternatives B and C seem to fall outside the reasonable range of alternatives because Alternative B fails to meet any of the project objectives specified in the Purpose and Need statement and Alternative C is characterized as not being economically viable (and thus not a reasonable alternative) in the supplemental information. We recommend that the EIS include a range of reasonable alternatives that fulfill project objectives of experimenting with uneven-aged helicopter harvest activities to minimize the building of roads, minimize disturbance in adjoining old-growth areas, and provide local employment opportunities in the wood products industry if follow-up economic analysis continues to show that Alternative C is not a viable option.

EPA #5

Stringer Bridges Versus Culverts

Although we consider Alternative C environmentally preferable to Alternative D, we are pleased that Alternative D would use log stringer bridges to span streams instead of culverts. The use of log stringer bridges allows for the free passage of migrating fish species and eliminates the risk of culverts plugging (especially undersized ones) and erosion and washouts occurring. We recommend that the Forest Service continue to incorporate stringer bridges in future projects that involve crossing streams, especially ones containing fish.

EPA #6

Please contact Chris Gebhardt of my staff at (206) 553-0253 if you have any questions. Thank you for the opportunity to review this draft EIS.

Sincerely,

Richard B. Parkin, Manager
Geographic Implementation Unit

Forest Service Response to EPA 5

In the Final EIS we expanded descriptions of alternatives and clarified the Purpose and Need so that all alternatives considered in detail are as viable as possible. Although Alternative C is not economical, it was retained for a comparison and reference point from which to show a range of effects and trade-offs of the other two alternatives. We also added discussion of Alternatives Considered but Eliminated from Detailed Study to Chapter 2 of the Final EIS.

Forest Service Response to EPA 6

All Class I, II and III streams will be crossed using log stringer bridges. As this area will probably not be re-entered again for 50+ years, all drainage structures will be removed from the roads, and all roads put into a storage condition upon completion of silvicultural activities.

Silver Bay Logging, Inc.

Box 1291

Wrangell, Alaska 99979

(907) 874-4100 Fax (907) 874-4120

May 8, 2000

Jerry Ingersoll
Ketchikan/Misty Fjords Ranger District
Ketchikan, Alaska 99901


Re: Emerald Bay Draft Environmental Impact Statement

Dear Mr. Ingersoll:

In reviewing the DEIS for this project I notice that the "preferred alternative" plans to log all volume by helicopter and build no roads or LTF. I don't know who this is suppose to be preferred for but certainly not for trying to sell this sale. Economics have to be the main governing factor on any timber sale and especially during poor markets. It does nobody any good to lay out deficit sales that will never sell. You mention that your average harvest cost would be 485/MBF. This might have been a reasonable figure to use if you were flying logs less than 1/4 of a mile to a land drop. Flying to a barge will increase your costs but more importantly a maximum flying distance of one mile is the limit. By building no roads you would have upwards of 5 miles to fly one way, this would never be economical even using the highest market values in the past 20 years and exporting all logs. It costs over 2000/hour to fly the helicopter and with the way fuel costs have been rising even that may be a conservative figure.

The best option for this sale would be to have a combination of cable and helicopter or at the very minimum having a road system in place and helicopter all volume but keeping it to a maximum average of 1/4 mile flying distance or less.

Sincerely yours



Jerry Kilanowski
Chief Engineer
Silver Bay Logging

SBL #1

Forest Service Response to SBL 1

Though some turn distances are greater than $\frac{3}{4}$ of a mile, we feel that with the addition of Alternative D the decision-maker has been provided with clear and reasoned trade-offs to contrast and weigh against one another and from which to interpolate or extrapolate various options.

May 5, 2000

District Ranger
Ketchikan - Misty Fjords Ranger District
Tongass National Forest
3031 Tongass Avenue
Ketchikan, AK 99901

RE: Emerald Bay EIS

As a citizen that provides a living for myself and my family from our Timber Industry, I am commenting of the Emerald Bay EIS.

I have to prefer Alternative D. As a third generation timber dependent employee Alternative B should be my choice for reasons of jobs, stumpage value, and the volume amount. But, with the impact of the harvest methods and concerns by the environmental groups, Alternative D would be my choice. The community needs employment and stability. Our schools are having large declining enrollment numbers. The timber industry is in dire need of volume for its mills, therefore Alternative A should not be considered. Alternative C should not have proceeded this far because of the huge deficit.

BG #1

Thank you for the opportunity to comment.



Bill Green
814 Monroe
Ketchikan, AK 99901

Forest Service Response to BG 1

Alternative D was developed for the reasons you mentioned. It is a reasonable compromise between B and C.

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FAX NO. 086

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United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1689 C Street, Room 119
Anchorage, Alaska 99501-5126

ER00/82

July 20, 2000

Mr. Jeremiah Ingersoll
District/Monument Ranger
Attention: Emerald Bay Timber Sale
U.S. Forest Service
3651 Tongass Avenue
Ketchikan, Alaska 99901

Dear Mr. Ingersoll:

As you know, on May 5, 2000, the Department of the Interior (DOI) submitted comments to you on the January 10, 2000, Draft Environmental Impact Statement (Draft EIS) for the proposed Emerald Bay Timber Sale near Ketchikan, Alaska, as well as the March 20, 2000, letter and inserts describing proposed changes to the Draft EIS. Our letter to you stated that Fish and Wildlife Service (FWS) representatives would be visiting the Emerald Bay Timber Sale area in June 2000 to gather additional information necessary for completing DOI's analysis of the potential effects of this timber sale. As a result, we requested the opportunity to submit additional comments to you by July 31, 2000.

In response to your letter dated May 12, 2000, in which you agreed to accept additional comments, we are formally providing to you in this letter, the results of the FWS site visit. To meet your schedule, we understand that FWS representatives in Juneau provided information regarding the results of the site visit to members of your staff on July 3, 2000.

The FWS "Report of Field Investigations for the Proposed Emerald Bay Log Transfer Facility on Cleveland peninsula Near Meyer's Chuck, Alaska", which is a part of the Emerald Bay Timber Sale project, is enclosed. The report contains information on the intertidal and subtidal plant and animal resources at the site in addition to updated information on bald eagle nests in the area. We believe it is important that these additional comments and observations be taken into account when preparing the Final EIS.

We appreciate you affording DOI the opportunity to provide additional comments on this Timber Sale and for these comments to become part of your planning record for this project. If you have any questions regarding the report, please contact Field Supervisor Teresa Woods at 907-790-7020, or Project Biologist Ed Grossman at 907-586-7069.

Sincerely,

A handwritten signature in cursive script that reads "Pamela Bergmann".

Pamela Bergmann
Regional Environmental Officer - Alaska

Enclosure

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INTRODUCTION

Project investigations were conducted by the U.S. Fish and Wildlife Service (Service) to provide pre-project biological information for the proposed Emerald Bay log transfer facility (LTF) on the Cleveland Peninsula, near Meyer's Chuck, Alaska (Figures 1 and 2).

BACKGROUND

Due to the rugged topography of the land and the intricate system of fjords, bays, and islands in southeast Alaska, harvested timber is usually transported on water, in log rafts or by barge, to various destinations for processing or export. LTFs for the transfer of timber to marine waters are often located in estuaries and other near shore marine waters that support essential breeding, rearing, and feeding grounds and migration routes for many species of fish and wildlife. While not always obvious, a significant amount of bark loss and accumulation results from log handling and storage activities at LTF sites.

The effects of logging activities on marine ecosystems have been reviewed by Hansen et al. (1971), Pease (1973), Schaumburg (1973), Duval et al. (1980), Sedell and Duval (1985), and Jackson (1986). Researchers generally categorize environmental concerns as: 1) loss of near shore tideland habitat from the discharge of fill material for construction of the LTF and auxiliary facilities, 2) leaching of toxic soluble substances from subtidal or upland wood-waste deposits, and 3) degradation and smothering of benthic habitat from the discharge and accumulation of bark and other organic debris at LTFs and in-water log storage areas. The effects of this habitat degradation can be reflected through the food chain, and result in a reduction in spawning and rearing habitat for commercially and recreational important aquatic species.

There are several approaches to lessening the harmful effects of concentrated bark deposits. These may include: 1) select sites where prevailing features or conditions will facilitate bark dispersal, 2) select sites which display relatively low biological resource value, and 3) select sites that could accommodate a barge-style LTF, while minimizing the need for intertidal fill. Site investigation techniques are designed to consider each approach, and where possible, identify sites which satisfy all the criteria.

In the case of the proposed Emerald Bay Timber Sale and associated LTF, Service concerns include construction of a road, log sorting yard, and possible rock pit, in/through a medium-sized Old Growth Reserve (OGR) and the designated 1,000-foot beach fringe buffer; disturbance of nesting bald eagles (*Haliaeetus leucocephalus*) by encroaching within the recommended 330-foot nest tree buffer, filling of tidelands to construct a barge style LTF in the beach fringe buffer, and bark accumulations, and their resultant impacts to intertidal and subtidal flora and fauna.

DOI #2-1

Forest Service Response to DOI 2-1

The Forest Plan does allow for construction of road, sortyards and related activities within the Old-growth Habitat Land Use Designation (Forest Plan page 3-81) and Beach Fringe and Estuary Buffers (Forest Plan page 4-4) if no feasible alternative is available. Given the isolated nature of the project area, the infrastructure necessary to provide alternative access is limited. In fact, underwater surveys found only one site in Emerald Bay that conforms to standards.

Marine benthic habitat impacts associated with the LTF are expected to have less than 1/4 acre of intertidal influence. The LTF has been designed to maximize the flushing of suspended bark away from the LTF area to the open sea before it can accumulate on the bottom. The timber sale contract would include provisions to make operator responsible for not allowing bark to enter the water (Final EIS, Chapter 3, page 3-20).

The large sortyard typically associated with many LTFs is not planned for this project. Enough space for decking logs prior to barge transfer will be required; however, this space will be reduced by staging the majority of the logs along the road until tides facilitate transfer to the barge.

Alternatives B and D propose road construction within an eagle nest protection area and we will work with the U.S. Fish and Wildlife Service to obtain the required variance. Alternative C would most likely require timing of helicopter harvest within the eagle nest protection area (Final EIS Chapter 3, page 3-22).

Impacts to the Old-growth Habitat associated with the road and LTF are expected to be minimal as they impact only 14 acres of a 12,000-acre reserve.

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OBJECTIVES

Investigations were directed at achieving the following objectives:

1. Investigate intertidal and shallow subtidal habitats at the proposed LTF to determine: a) the physical characteristics including depth, slope, substrate, and current patterns; and b) the biological characteristics (productivity and diversity).
2. Evaluate the proposed site using the Alaska Timber Task Force LTF guidelines (1985), and recommend alternatives or mitigative measures to minimize adverse effects to fish and wildlife resources.

METHODS

A 100-meter long Keson fiberglass tape was set along the axis of the proposed LTF site from the approximate Mean High Water Line (MHWL) and extended seaward to the end of the tape. Service divers, using self contained underwater breathing apparatus (S.C.U.B.A.) gathered information along the transect line as well as in the general area of potential impact. Observations of physical and biological characteristics were made at 5-meter intervals along the transect and recorded on waterproof paper. Observations included water depth (measured with a US Divers Monitor 2 diving computer), substrate composition, plant species, animal species, and obvious changes in zonation. In addition, the general characteristics of the area, and the evidence of current flow patterns were noted subjectively.

RESULTS

Latitude 55° 53.24'N, Longitude 132° 02.87'W. Compass Heading 250° magnetic. Date: June 8, 2000. Time: 0903 hours. Tide level: 1.9 meters (Ketchikan, Alaska). Aquatic plant species observed are listed in Table 1, aquatic invertebrate and fish species observed are listed in Table 2, and the bottom profile (adjusted to zero tide for this cycle) is shown in Figure 3.

The sea floor substrate from MHWL to 55 meters along the transect consisted primarily of bedrock. From 55 to 100 meters the substrate was primarily sand.

The brown algae sieve kelp (*Agarum clathratum*) and sugar kelp (*Laminaria saccharina*), and the red alga rock crust (*Lithothamnion phymatodeum*) were dominant. The California sea cucumber (*Parastichopus californicus*) and hermit crabs (*Pagurus spp*) were the dominant animal species. We would subjectively characterize the plant community and animal component as typical, with a high diversity of species. Abundance of individual species was average with the exception of the California sea cucumber (*Parastichopus californicus*), which was relatively abundant and was observed in a variety of sizes.

No obvious changes in zonation and little current was noted along the transect.

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DISCUSSION

The proposed Emerald Bay LTF location we investigated does not meet the 1985 Alaska Timber Task Force LTF siting guidelines. Specifically, the following siting guidelines will not be met with this project as proposed:

DOI #2-2

1) Bark dispersal - LTFs should be sited along or adjacent to straits, channels, or deep bays where currents may be strong enough to disperse wood debris. The proposed Emerald Bay LTF site is relatively shallow and little current was detected along the underwater transects. These factors, in combination, may inhibit bark dispersal.

DOI #2-2a

2) Site productivity - LTFs should be located in the least productive intertidal and subtidal zones. The proposed Emerald Bay LTF site supports a plant community and animal component that is typical, with a high diversity of species (over four dozen species). The California sea cucumber (*Parastichopus californicus*), a commercially important species, was the most abundant animal observed, and because it was observed in a number of sizes, this suggests that the Emerald Bay site may be a cucumber nursery area. The proposed LTF will likely degrade or possibly eliminate habitat for this and other species observed.

DOI #2-2b

3) Avoidance of bald eagle nest trees - LTFs should be sited to avoid bald eagle nest trees. No project construction or operations should be closer than 330 feet to any bald eagle nest tree. The Emerald Bay area was resurveyed for bald eagle nests on June 7, 2000. Three nests are located at or near Emerald Bay, and no nests were found immediately north of Emerald Bay (Figure 4). The proposed Emerald Bay LTF will encroach within the recommended 330 foot buffer zone of an active bald eagle nest. Construction and utilization of this site may adversely impact these birds, possibly causing nest failure, and resulting in a violation of the Bald Eagle Protection Act.

DOI #2-2c

There are a number of different LTF designs in use on the Tongass National Forest. A small barge-style LTF is proposed for the Emerald Bay site, thus a number of standard concerns relating to LTFs will be minimized, particularly concerns about intertidal fill and bark loss.

The proposed facility will only be used at higher tides, which reduces the amount of intertidal fill necessary to access barges. This, however, requires that a large sort yard area be constructed in the uplands in close proximity to the LTF to store logs between tidal cycles. This will further impact the designated beach fringe and the medium OGR at this site, and will increase the level of disturbance around nesting bald eagles.

Barge facilities minimize (but do not eliminate) the amount of bark that enters the water during log transfer because logs are placed directly on the barges. This proposed LTF site is also exposed to westerly winds, as was evident by the lack of silt along the transect. Surf resulting from storms out of the west may adequately oxygenate and disperse what bark may be lost during log transfer.

CONCLUSIONS

Forest Service Response to DOI2-2

The proposed LTF is designed to comply with the 1985 Alaska Timber Task Force LTF siting guidelines with regards to bark dispersal, site productivity and avoidance of bald eagle nests.

Forest Service Response to DOI2-2a

As stated in Response to DOI 2-1, the LTF has been designed to minimize bark deposition. The timber sale contract would include provisions to make operator responsible for not allowing bark to enter the water. (Final EIS, Chapter 3, page 3-20).

Forest Service Response to DOI2-2b

One of the reasons a barge facility is proposed for the Emerald Bay project is that these types of facilities tend to have less impact on the marine environment.

Because the California sea cucumber is not listed as a threatened, endangered or sensitive species, the Forest Plan provides no specific guidelines for management activities affecting it, but is opting toward the least impacting of available options.

Forest Service Response to DOI 2-2c

We intend to work closely with the Fish and Wildlife Service per the requirements of our interagency agreement. A variance will be requested.

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The proposed project, as designed, may have negative effects on existing marine plant and animal species in the Emerald Bay area. Of greatest concern in the marine environment is the potential impact the LTF may have on California sea cucumber habitat. Of greatest concern in the uplands are the impacts to the designated beach fringe and disturbance of nesting bald eagles. As a part of our field review at Emerald Bay, we investigated the Emerald Creek estuary, and it appears that the proposed road for this project may be located within the 1,000 designated estuary fringe for Emerald Creek.

DOI #2-3

The type and size of the LTF proposed will minimize some of the concerns about intertidal fill, and bark loss. However, after analyzing the information gathered cooperatively in the field, and provided previously in the Emerald Bay Timber Sale Draft Environmental Impact Statement, the Service continues to conclude that selection of the No Action alternative, or the unroaded alternative would be the most environmentally sensitive decision for this project. Previous comments submitted by the Department of the Interior on Emerald Bay Timber Sale are incorporated by reference.

DOI #2-4

CAVEAT

The above conclusions are based upon observations of marine habitats made during a limited time period. It should be noted that observations over time were not made and as a result, seasonal changes in habitat use, including fish and shellfish spawning occurrences were not observed. Information obtained at a future date, relating to fish and wildlife species, may influence our recommendation.

ACKNOWLEDGMENTS

Transportation to and from the Emerald Bay area was provided by the Service vessel M/V Curlew, piloted by Captain Joe Spiccianni. Principal investigators were Service Biologist/Divers Steve Brockmann and Ed Grossman. Service Biologist Duane Petersen skiff tended and edited a draft of this report, and Service Biologist Mike Jacobson conducted eagle nest surveys and provided eagle information for this report. We appreciate the logistical assistance provided by Mike Brown and Jim Rhodes with the U.S. Forest Service, and Jack Gustafson with the Alaska Department of Fish and Game.

LITERATURE CITED

- Alaska Timber Task Force Subcommittee. 1985. Log transfer facility siting, construction, operation, and monitoring/reporting guidelines. Unpublished interagency/industry recommendations. State of Alaska, Juneau, AK. 19p.
- Duval, W.S. and F. Slaney. 1980. A review of the impacts of log handling on coastal marine environments and resources. Report prepared for COFI/Govt. Estuary, Foreshore, and Water Log Handling and Transportation Study; Vancouver, B.C. 224 p.

Forest Service Response to DOI 2-3

The Forest Plan allows for road building in the beach and estuary fringe if necessary to access timber in adjacent programmed areas when there are no feasible alternatives (Forest Plan 4-4; also see responses to DOI 2-1, DOI 2-2, DOI 2-2a, DOI 2-2b). The associated effects are disclosed in the Final EIS, Chapter 3, Marine Environment, Biodiversity and Old Growth, and Water sections.

As mentioned previously, one of the reasons a barge facility is proposed for the Emerald Bay project is that these types of facilities tend to have less impact on the marine environment. Because the California sea cucumber is not listed as a threatened, endangered or sensitive species, the Forest Plan provides no specific guidelines for management activities affecting it, but the proposed LTF, along with included contractual provisions, are intended to further reduce possible impacts.

Forest Service Response to DOI 2-4

The Forest Service has determined Alternative A to be the environmentally preferred alternative (Final EIS, Chapter 2).

Appendix B

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- Hanson, G., T. Carter, and G. O'Neal. 1971. Log storage and rafting in public waters. Environmental Protection Agency, Seattle, WA. Task force report for Pacific Northwest Pollution Control Council. 56 p.
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- Sedell, J.R. and W.S. Duval. 1985. Water transportation and storage of logs. USDA Forest Service Technical Report PNW-186, Portland, OR.



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Tongass National Forest
USDA Forest Service
Ketchikan/Misty Fjords Ranger District
3031 Tongass Avenue
Ketchikan, Alaska 99901

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